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The Public Lighting Tables of the American Meter Company will be found in the page advertisement of that Company.

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[OFFICIAL NOTICE.]

Where to Find the Western Gas Association's Exhibit, and the Custodian Thereof, at the World's Fair.

To the Fraternity: The exhibit of the Western Gas Association, at the World's Fair, St. Louis, is located in Section 33A, Liberal Arts Building, where Mr. Fred. R. Persons, who is in charge of the same, will always be on hand to receive visitors and to explain anything that requires explaining.

[OFFICIAL NOTICE.]

Thirty-Second Annual Meeting, American Gas Light Association.

AMERICAN GAS LIGHT ASSOCIATION,
OFFICE OF THE SECRETARY,
NEW YORK CITY, Sept. 14, 1904.

General Announcement.—There will be an annual meeting of the American Gas Light Association held at Washington, D. C., October 19th to 21st, 1904. The meeting will be called to order by the President, Rollin Norris, of Philadelphia, Pa., at 10 A.M., on Wednesday, Oct. 19.

The meeting hall will be on the tenth floor of the New Willard Hotel. The headquarters will be at the New Willard Hotel, 14th and F streets, Washington, D. C.

The most satisfactory quarters are always obtained by writing in advance to the hotel people, and in doing so a reply should be requested, for which a self-addressed stamped envelope should be inclosed, as misunderstandings may thereby be averted.

The New Willard Hotel is conducted solely on the European plan, and the rates for rooms will be as follows: Rooms without bath, $2.50 per day and upwards; rooms with bath, $3.50 per day and upwards. Double rooms without bath, $4 per day and upwards; double rooms with bath, $5 per day and upwards.

As the meeting room is in the hotel, it is hoped that all will make their headquarters at this hotel. There are, however, other hotels in the vicinity.

The roll call will be made by means of the door card system. Each member upon entering the hall for the first time will, at the door, receive a special card upon which he will find his name, address, etc., as it appears on the Secretary's books, and such card should be corrected and given to the doorkeeper. Members in attendance should attend to this very carefully, as these cards are used immediately after the meeting for correcting the annual membership list. Visitors will please hand to the doorkeeper their personal cards. A blank form of application for membership accompanies this circular. More can be obtained of the Secretary.

Remember, all applications must be in the hands of the Secretary by October 10th at the very latest, otherwise they will not be acted upon at this meeting.

The list of papers to be read at the meeting is as follows:

"Generation of Steam by Waste Heat from Water Gas Sets," by Donald McDonald, Louisville, Ky.

"Distributing Power Throughout a Gas Works by Means of Electricity Generated at a Central Point," by W. A. Baehr, St. Louis, Mo.

"Oxide Purification," by E. H. Earnshaw, Philadelphia, Pa.

"Methods of Charging for Gas," by F. W. Frueauff, Denver, Col.

"Consumers' Meters," by B. H. Spangenberg, Philadelphia, Pa.

There will also be discussions on subjects connected with coal gas manufacture.

All members attending the meeting are particularly requested to wear their membership badges in plain sight, thereby greatly aiding the officers and the local committee in their work, by affording a ready means of recognition.

In order that the year book containing the report of this meeting may be published and issued to the members immediately after the meeting,

LIBRARY OF CONGRESS
OCT 6
SMITHSONIAN DEPOSIT.

notice is hereby given that if any of the speakers at this meeting desire to correct their remarks before they are printed, they will be given an opportunity before leaving Washington, but not after. The stenographer will have typewritten copy of the principal discussions prepared at the headquarters between the sessions of the meeting, and all those who desire to correct their remarks must notify the Secretary at the close of the session at which such remarks are made, as all the reports will be turned in to the printer immediately after the adjournment of the meeting.

Special.—As Washington is a very interesting city, it has been decided to have no entertainment on Wednesday night—leaving the members free at that time. There will, however, be a banquet on Thursday evening, and a steamboat excursion to Mount Vernon on Friday with luncheon.

For the ladies there will be on Thursday a trip around Washington in automobiles, and the Mount Vernon trip on Friday.

There will probably be a theater party for the ladies on Thursday evening, as the banquet will be for the men exclusively.

The price of tickets, including all the entertainments, will be $5.

A. E. FORSTALL, Secretary.

[OFFICIAL NOTICE.]

Wrinkle Department, Western Gas Association.

OFFICE OF EDITOR WRINKLE DEPARTMENT,
ST. LOUIS, MO., July 25, 1904.

To the Members of the Western Gas Association: We again invite contributions to the Wrinkle Department of the Western Gas Association for the meeting of 1905. The Editor wishes to call the attention of the members of the Western Gas Association, and of the gas fraternity at large, to the fact that the "Western" has done good work in this department in the past; that its Wrinkles have been of value to many, and that it proposes to continue the good work.

The Editor further wishes to suggest that an earnest effort be made to improve the quality of the Wrinkles submitted, as a great many of the devices, while of undoubted practical value, are such as any gas works' foreman should know. We desire the Wrinkles which have a greater bearing on the scientific and technical portion of our business. Of course, there will always be room for the little, handy, practical devices, which so often help us over the rough places. We will gladly receive them, but we should all aim to place the gas business on a par with other scientific and engineering enterprises which are practically in a basis of exact knowledge and high efficiency.

To that end, therefore, we desire to secure a large collection of Wrinkles for the 1905 meeting. Give us the benefit of the mathematical, chemical, thermal and other devices which have helped you in designing or improving your plants; do not hesitate to send in the practical devices which are not on record so far; submit the ideas which have made the business end a success; and, finally, let every individual contribute his portion, so that the result may be worthy the achievements of the past, and a credit to the Western Gas Association.

The following wrinkle is submitted as a sample to guide others somewhat in working out their contributions to this department. This describes a method of regulating the pressure on the outlet of a holder in proportion to the rate of sendout, and was contributed by the writer to another Association some time ago.

"The essential idea of street pressure regulation is to maintain a certain pressure at the consumers' meters within a small percentage either way of the fixed pressure. As the consumption increases or decreases, the holder pressure should be raised or lowered. This is usually done by having recording pressure gauges located in the district supplied by the holder, and raising or lowering the holder pressure until the best average for the district is reached.

"Now, it is, of course, true that the same conditions of consumption never obtain on successive days or months, and, therefore, the following automatic indicator was suggested by the writer: In the outlet pipe of the holder we place a Pitot tube facing the holder. Naturally, the opening from the Pitot tube which faces the stream of flowing gas gives the pressure due to the sum of the static head plus the impact or velocity head, whereas the side openings give the pressure due to the static head only. Therefore, any variation in the rate of flow of the gas is at once indicated by the variation in differential pressure from the two openings of the Pitot tube.

"By using a very sensitive differential pressure gauge, we can thus observe this variable rate of flow. It is, of course, necessary to calibrate the instrument for each holder to be able to tell what pressures to carry on the outlet pipe for each division on the sensitive differential gauge, and it would probably be well to check this three or four times during the year. The Laclede Gas Light Company has so far secured three satisfactory types of extremely sensitive differential pressure gauges, and we have arranged them with two scales, one of which shows the divisions in millimeters and the other gives the proper pressures to be carried on the holder outlet opposite the indicator on the gauge. The writer purposely refrains from adding drawings or too much detail to the above description, as he merely wishes to submit one idea, which he hopes will suggest many others to help swell the contributions."

We must start the work at once; therefore, please send your ideas to the Editor, 716 Locust street, St. Louis, Mo., and oblige, Yours truly,

W. A. BAEHR, Editor Wrinkle Department.

BRIEFLY TOLD.

SOME RANDOM NOTES FROM THE WORLD'S FAIR.—No. IV.—World's Fair, St. Louis, Mo., Sept. 26th: Dear JOURNAL: Either I forgot to write you last week, or that you omitted to make the mention, that one of our most interested visitors a fortnight or so ago was Capt. Thomas D. Miller, of New Orleans. He may make an attempt to have the Southwest Pass tower lighting display removed to New Orleans when the Fair is over. He did not seem anxious to go home when his allotted vacation days were numbered. Last week was quite a busy one in the gas line here, as the list of visitors registering at the Western's booth will show. Mr. William E. McKay, of Boston, made a short visit with us Saturday. His praises of the different exhibits in connection with the gas industry were unlimited. The "permanent" gas contingent here had the pleasure of showing Mr. McKay through the Alps. There is no good reason why we shouldn't have a full delegation here to go to the American meeting in Washington. Anyone desiring sleeping car accommodations for that trip should inform the writer at as early a date as possible. Eastern people are coming to the Fair in large numbers these days, and the trains going East are carrying to their capacity. Mr. Frederic Egner, of Norfolk, was in town with the delegation from Jamestown, Va., getting information for use in connection with the fair they propose to hold there in 1907. The following registered at the Western booth last week: H. C. Ross, Baltimore, Md.; F. J. Laird, St. Louis, Mo.; D. W. Butterfield, Carthage, Mo.; C. P. Kenton, Anderson, Ind.; S. Kahn, Hamilton, O.; Emmett Scott, La Porte, Ind.; H. B. Marth, Brooklyn, N. Y.; J. J. Humphrey, Jr., Brooklyn, N. Y.; Frederic Egner, Norfolk, Va.; E. C. White, Long Branch, N. J.; A. K. Enderlin, Roxbury, N. Y.; M. Waugh, St. Louis, Mo.; R. E. Brown, Mankato, Minn.; J. E. Livon, New York city; D. M. Steward, Chattanooga, Tenn.; H. M. Buck, Waukesha, Wis.; E. P. Taylor, Champaign, Ills.; Frank Huber, Louisville, Ky.; R. C. Douglas, Chicago; William E. McKay, Boston, Mass.—FRED. R. PERSONS.

NOTES——

WITH exceeding regret we chronicle the death, at his parents' home, Yonkers, N. Y., the morning of September 24th, of Roy Moody Hayward, youngest son of Mr. S. F. Hayward, whose name is as a household word in the gas profession of America. The funeral ceremonies were held at his home, the evening of September 26th. The deceased, who was in his 18th year, gave strong promise of a life of usefulness. We all sorrow with his parents in their great grief.

ANOTHER death to be recorded in the gas ranks is that of Ira Nelson Stanley, whose demise occurred at Freeport, L. I., the morning of September 21st, in his 84th year. A half century ago Mr. Stanley was prominently identified with the work of the Brooklyn (N. Y.) Gas Light Company, and later on was engaged with the late J. K. Brick in the manufacture of fireclay products for gas works. For years he was connected with the Brooklyn Firebrick Works, and, acting in conjunction with the late Colonel W. A. Stedman, was the inventor of the setting known under the title of the Stedman-Stanley recuperator system.

THE Gas Machinery Company, of Cleveland, O., has been awarded a contract for the placing in the works of the Hartford City (Conn.) Gas Light Company of a water gas apparatus equal to the producing of 1,500,000 cubic feet per day.

THE Milwaukee Gas Light Company has contracted with the Riter-Conley Manufacturing Company, of Pittsburg, Pa., for the construction of a storage holder, the rated capacity of which is put at 6,200,000 cubic feet. It is to rest in a tank the diameter of which will be 225 feet and its depth 36 feet. The constructors agree to have their task finished by November 1, 1905. This holder capacity exceeds that of any other in America at the present time, and is about one-half that of the largest holder in the world—the holder on the East Greenwich plant of the South Metropolitan Gas Company, of London, England, the working capacity of which is 12,158,000 cubic feet.

Address of the President of the Michigan Gas Association (Mr. S. E. Wolff, of Jackson), on the Occasion of Its Twelfth Annual Meeting, September 21 and 22.

To the Members of the Michigan Gas Association.—It is with great pleasure that I greet you here to-day and welcome you to this twelfth meeting of our Association.

I welcome you to this city, and desire now to thank you for the honor conferred upon me in naming me as your President, and to voice my appreciation of the fact that you have deigned to meet in this, my home city.

At this time I express my thanks for the valuable assistance rendered me by the officers and members of this Association in the preparations for this meeting.

It is my earnest hope that this meeting will be profitable to you and that you will so enjoy your sojourn in this city that you will desire to return for a future meeting.

Membership.—I believe it is a recognized fact that this Association, like every other body, is constantly in need of new material. Several of the gas companies in Michigan are represented in this Association. An endeavor has been made to get representatives from the remaining companies, and I presume there will always be a number of companies in this State which, because of geographical location or unprogressiveness, are not represented on our rolls.

This Association should number among its membership at least one representative from every company within the State, and all of its members should be not only on the active list, but active in the work of the Association.

I think the active membership of this Association should be confined to men residing in the State and its immediate environment, and that no broad canvass for members living several hundred miles without the State should be made. There is sufficient work for the Association to do if it will confine itself to those things that are of peculiar interest to the gas companies of this State, lower Canada, and parts of contiguous States.

The trend of progressive thought seems to be towards a more centralized body among gas men in this country, and the work and scope of this Association should be that naturally occasioned by the close geographical locations of the companies represented. In another place I shall speak of a proposed new association, the movement for which has already gained considerable momentum.

I believe that our campaign for membership should be conducted along this line. Get on our rolls every man interested in the manufacture and sale of gas and supplies for gas companies. Make all of these do some work. I am not in accord with the prevailing custom of excluding associate members from writing papers, nor from any function of the active members which will add to the progress of the cause or the knowledge of the whole membership.

Scholarship Fund.—During the past year to this fund liberal subscriptions have been made, and I would solicit at this time a continuance of your bounty for it, and would ask that the work performed by the fellowship be given your earnest consideration and that the members of the scholarship committee inform themselves fully, by observation and interview, of the scope of the work and the results obtained, in order that they may advance the work in hand, and to help solve some of the many problems which are piling up in front of the gas industry.

Labor.—During the past year the gas companies of this State have experienced little if any difficulty with labor, either organized or unorganized. How much of this is due to a somewhat circumscribed prosperity, or to a better understanding between employers and employed, each can answer better for his own locality.

That the demands of both labor and capital have at times been unreasonable the daily prints bear testimony. Public service corporations being particularly vulnerable on this point, should endeavor to meet this question squarely on the basis of their financial and moral responsibility, and in all their dealings with labor should take such broad ground as will win for them the respect of public opinion, maintaining always that their franchise rights entail upon them obligations that cannot and should not be avoided, and which do not permit them to discriminate for or against any body of working men.

Appliances.—During the past 8 months no marked progress has been made in appliances using gas for fuel. In lighting appliances the inverted, incandescent mantle lamp, which has been much advertised for its decorative effect, has not been perfected to such an extent that we can give it our full indorsement.

Airhole glassware, at first viewed by many as a short-lived fad, seems to be gaining popular favor, and with the increasing demand for more light will find a ready market.

The individual burner, of construction and design reducing breakage of glassware and mantles to a minimum, was predicted in the address of your President only a few months since, and those now on the market will, I believe, in some form be a benefit to the trade.

In connection with various appliances there has during the past year been a great deal of claptrap advertising of the patent medicine variety, and it seems wise to me that every gas man throw the weight of his influence to the side of advertising that tells the truth, the whole truth and nothing but the truth. We cannot afford to deceive our customers, and we should, so far as able, stand between them and the makers of appliances who advertise the impossible.

Advertising.—I have already mentioned this subject. I believe that a reasonable sum of money expended for publicity is logical and desirable, and that the progressiveness of almost every company is indicated by the advertising it presents to the public.

It seems to me that much good might be done in this State by some concerted action by the various companies. This was tried once as a national matter, but it did not prove successful. If it can be arranged that each company will feel it is being called upon for no more than its rightful share of the money necessary to promote an advertising campaign, the Michigan Gas Association could well afford to employ a man for this work, and would, I believe, secure better and more effective advertising matter than they now publish. A departure along these lines having for its object an increased demand for gas coke would, perhaps, be a starter of this scheme.

Residuals.—I believe this topic touches the interest of more men assembled here to-day than any other of which I shall speak.

The increased production and consumption of coal gas, influenced by the past and present high cost of water gas, has brought on us a condition not wholly unforeseen. Companies operating at low costs find residual returns the largest single factor affecting the results obtained and desired. This is rendered more difficult because to a large extent these returns are governed by market conditions partially beyond our control. The trend of prices for gas is toward reduction. These cannot come entirely from our profits, and the greatest possibilities for such reductions seem to lie in increased residual returns. I would recommend that at this meeting a committee be appointed to determine standard sizes of coke, and that such committee be authorized, by correspondence or otherwise, to secure from the gas companies marketing coke in this State their ideas, approval and adoption of such a plan as the committee may recommend.

The market for tar continues inert, and no immediate relief seems probable. Many companies are burning their tar, and this seems at present about the only disposition that can be made of it. Some tar is being used for pavements, and it would be well if all the members of this Association would use such means as they have at their command to promote the sale of this particular material for public improvements.

New Association.—During the past few weeks the Congress of American Gas Associations adopted a resolution for the appointment of a committee to formulate plans for the organization of an association comprising men interested in the business in all parts of the country.

This committee is composed of two active members from each Association, together with three members representing the profession at large. It is proposed that the central body shall have State or local divisions.

Your Association is represented on this Committee by Messrs. Cobb and Douglas, and I would recommend that at some future session of this meeting the Association, so far as its members are able, give voice to its ideas on this question, that your Committee may know what the desires of the Association are.

The prospects for the gas business generally seem bright. We should not, however, forget that we must be progressive. Many of our cities have practically reached the limit of their market along certain lines, excepting so far as the natural growth of their territory shall influence. I believe, however, that all companies represented here should make material increases in their business, but believe they will find it necessary to use their ingenuity, their progressiveness and their labor toward finding new uses for gas.

In conclusion, let me again thank you for the honor you have conferred on me, and assure you of my loyalty to this Association.

THE promoters are still at work on the project for placing a gas plant in Chestertown, Md. The initial capitalization is put at $25,000.

Retort House Practice in a Small Works.

[A paper read by MR. GEORGE C. TURNER, Secretary Coldwater (Mich.) Gas Company, at the Twelfth Annual Meeting, Michigan Gas Association.]

The writer greatly fears that the reading of this paper will be like "Bringing coals to Newcastle," as far as a majority of those present is concerned, but there are many members of this Association who operate small works and for whom the chemical analysis and technical terms used in the description of experiments carried on by the large gas companies have but little interest. If anything shall be brought out that will lead to a free, unembarrassed discussion, tending to a liberal interchange of ideas by the last named members who usually take but little active part in these meetings, the object of the paper will have been attained.

He is also obliged to confess that he never had any experience in the gas business prior to the time of entering the employ of the Coldwater Company, nor has he had opportunity since then of visiting works of similar size for the purpose of learning the methods and practice of other managers. The observations herein set forth are, therefore, of methods which have seemed most practical and expedient in the above-mentioned plant, but which may be entirely at variance with those of other works of the same capacity.

In the spring of 1895 the writer, fresh from a desk in a Chicago bank, secured a more or less responsible position with the Gas Company at Coldwater. In the retort house he found in operation a bench of 3 diminutive retorts, the destiny of which was presided over by 2 aged and decrepit gentlemen who remained on duty 12 hours each, and also ministered to the wants of 2 small purifying boxes filled with lime. Incidentally they felt capable of administering all branches of business—office work, management and distribution—in addition to their other duties, and resented accordingly being placed under the supervision of a youth of tender years, who had no knowledge of gas manufacturing. The station meter for the previous year had registered 2,000,000 cubic feet as the total gas made, and although the population of Coldwater is no greater now than then (about 6,000) the gas made in 1903 amounted to 17,355,000 cubic feet, and this year we hope to exceed 20,000,000 cubic feet, but it is needless to say that the 2 old gentlemen have long since sought other fields of usefulness.

When the consumption had been worked up to a point where it was necessary to install 2 benches of 5's (plain settings) in a new retort house, the question as to the economy of low or high heats presented itself. By maintaining a high heat and charging every 6 hours, we obtain, with ¼-inch Youghiogheny coal and without enrichment, a yield of 5.2 cubic feet of gas (not corrected for temperature or barometer) per pound of coal carbonized. The average yield with a low heat is about ½ cubic foot less per pound. Assuming that with a low heat a bench will last 36 months, and with a high heat only 18 months (although in reality it will last longer), in operating 2 benches of 5's the expense of renewals would be two-thirds the price of a bench setting *more* per year in maintaining a high heat than a low one. The cost of the retorts, etc., and the labor of setting a bench of 5's, is about $280 with us, and two-thirds of this price would, therefore, be $186.66. The carbonization of 3,470,000 pounds of coal in our retort house during the year 1903 would mean consequently 1,735,000 more cubic feet of gas made than would have been obtained with low heats.

A test at our works, August 9th of this year, showed that 300 pounds of coke as bench fuel per ton of coal carbonized were required in running a bench of 5's at full capacity at a low heat. Now the average amount of bench fuel required to maintain a high heat is 364 pounds of coke per ton of coal carbonized, as was shown in tests which will be mentioned later. Thus the amount of bench fuel used during the year was 55 tons greater, on account of keeping up high heats. Our coke netted us about $4.60 per ton at the yard last year, so we had the value of the coke ($253) added to the extra cost of bench renewals, $186.66, a total of only $439.66 to offset the 1,735,000 cubic feet of gas; and the fact must not be overlooked that low heats produce an inferior grade of coke, much less attractive to those purchasing it for domestic use. On this basis preference has been given by us to high heats If the output be such, say 45,000 cubic feet a day, as to require all that could be made in 1 bench of 5's and half as much as could be made in another, both run at high heats, it is desirable to know the most economical way of managing. In a test made August 8th a bench of 5's was run for 24 hours at half capacity (ten 300-pound charges) with a low heat. The charges were fully burned out, giving the same yield as with high heats, but the bench fuel used was 510 pounds of coke per ton of coal carbonized. The comparison in economy between running 2 benches of 5's with low heats at nearly full capacity, and 2 benches of 5's, one at full capacity with high heat, and the other at half capacity with low heat, would be as follows, the item of labor being the same in both cases and the yield per pound of coal carbonized being considered, 4.5 cubic feet in the one case and 5 cubic feet in the other—duration of time 24 hours:

Two Benches of 5's with Low Heats.

Coal carbonized—10,000 pounds, at $3 per ton	$15.00
Bench fuel—300 pounds of coke per ton of coal carbonized, 1,500 pounds, at $4.60 per ton	3.45
Total	$18.45

One Bench of 5's at Full Capacity with High Heats, and One Bench of 5's at Half Capacity with Low Heats.

Coal carbonized—9,000 pounds at $3 per ton	$13.50
Bench fuel—364 pounds of coke per ton of coal carbonized in full capacity bench ..... 1,092 pounds.	
510 pounds of coke per ton of coal carbonized in half capacity bench ..... 765 pounds.	
Total ..... 1,857 pounds.	
1,857 pounds at $4.60 per ton	4.27
Extra cost for bench renewal for full capacity bench, 24 hours ...	.26
Total	$18.03

By this method it will be seen that it is more economical, by 42 cents a day, or $153.30 a year, to operate the 2 benches in the latter manner, besides securing a more desirable grade of coke.

It has been aptly said that the profits of a gas company are made or lost in the retort house, and this is just as true of a small company as of a large one. One drawback in operating a works of the size described in this paper is that the plant is not large enough to justify the paying of a foreman to oversee the retort house work, but it is so large and has such claims on the time of a manager that it is impossible for him to give this branch of the business constant personal attention. The alternative seems to be to hire the best stokers you can get, stimulate their interest in the work, and arouse a friendly rivalry as to gas made and yield per pound of coal carbonized at the beginning of the run and they will watch the results each day with the keenest interest. It might seem that this would lead to heavier charges being thrown than were reported, but when the next stoker began to pull charges on his run, he would notice if they were larger than they should be, especially if the preceding stoker had made a good showing, although each would have a chance to throw charges 25 or 50 pounds heavier than reported on the first part of a run, possibly without detection. However, we have found no other plan which seemed any better. Although 4 to 5 hours are usually considered sufficient time in which to burn a charge, we charge our retorts only once in 6 hours, in which time all the gas that can possibly be extracted from the coal is obtained, and also a most excellent grade of coke. As stated before we have no trouble in obtaining a fraction over 5 cubic feet of gas to the pound of coal carbonized under these conditions.

The following tests were made in July of this year:

Retort House Practice in a Small Works.

	Coal Carbonized in 24 Hours. Pounds.	Coke Drawn in 24 Hours. Pounds.	Coke Used for Fuel in 24 Hours. Pounds.	Gas Made per Pound of Coal Carbonized (Uncorrected.) Cubic Feet.	Percentage of Coal Carbonized, Drawn out as Coke.	Percentage of Coke Drawn Used for Fuel.	Bench Fuel used per ton of Coal Carbonized. Pounds.
July 27, bench of 5's in use 10 days.....	6,000	4,150	1,210	5.19	69.16	29.15	403
July 28, bench of 5's in use 20 months...	6,000	3,955	1,060	5.21	65.92	26.80	353
July 29, bench of 5's in use 11 months...	6,000	4,045	1,045	5.20	67.41	25.83	338

During the past 8 months of this year we have made on an average, 55,000 cubic feet of gas per day, and the cost of retort house labor has been 9.3 cents for every 1,000 cubic feet of gas put into the holder. These figures are obtained by adding to the wages of the stokers and their helper the cost of an hour's time of the street foreman each day, which is more than he really gives. No extra labor is employed around the retort house.

We cannot repress our envy that the cost of retort house labor at the Jackson gas works was only 6½ to 7 cents per 1,000 cubic feet as was stated by Mr. Whalen during the discussion of the paper he read at our last meeting. We can only comfort ourselves by believing that the greater the amount of gas made the cheaper the cost of production.

Our retort house force consists of 3 men; 2 stokers and 1 helper. The stokers are on duty 12 hours each; one working from midnight until noon, and the other from noon until midnight, while the helper assists them from 6 o'clock in the morning until 6 o'clock at night, working with each stoker for half of his run. The fires are "broken down" every 2 or 3 hours, and the clinkering is done at 10 in the forenoon and 4 in the afternoon so that the third man can help. Fires are not allowed to die down before clinkering, but are always at white heat. This makes it pretty hot for the men, but clinkers on the sides of the firebox and on the grate bars can be pried off more easily and the work can be done much quicker, while at the same time the cooling down of the bench is prevented. In building a fire allowance is made for the fact that there is more heat in the back part of a firebox than in front and the coke is heaped a little higher at the back, sloping gradually toward the door. When the fire has practically burned down the top surface of the bed of fuel is level and there are no depressions or dark spots at the back to lower the temperature of the bench by allowing cold air to pass up through these thin layers of coke. The grate bars are jarred every half hour to cause the ashes and small clinkers to drop into the ash pit, the steam arising from their contact with the water which is constantly kept there materially helping the fire and softening the clinkers in the firebox. Standpipes are cleaned before each charge is made, one of the implements used in the operation being a flexible iron rod with a chisel and hook at one end, the chisel cutting obstructions off from the standpipe when the rod is pushed upward and the hook doing the same kind of work when the rod is drawn downward.

We have never tried soft coal as a fuel, as our works, being wtthout a water gas set as an adjunct, is liable by experience to make ourselves a nuisance. The advantage would seem to be in the use of coke, however, as a more even heat can be maintained and the flues stop up much less frequently. One other reason should also favor coke, and that is in small towns of stationary population the great increase in the sale of gas and consequently in the production of coke have considerably exceeded the demand for the latter as a domestic fuel. It would, therefore, be impossible to find a sale at a fair price for the entire output of coke if a portion were not used in firing. If some practical method could be devised for the use of the tar by-product, either in firing or making gas, which would eliminate the troubles, such as filling up of flues, etc., it might be a valuable help, as at the present price we are offered for tar it hardly pays to buy the barrels in which to put it.

A small gas works running at nearly its full capacity and without a water gas set as an adjunct is liable to experience numerous difficulties in the course of a year. For instance, in the summer there may be nearly a week of very dark and hot days, when every gas stove is in use and also all of the lights, making a very sudden and unexpected increase in gas consumption, and of which there has not been enough warning to enable the starting of a new bench, even if the extra expense did not preclude it. Many towns also have a carnival week in August or September, in which the gas consumption increases one-third during the week, and there is always a very large increase for 2 weeks during the holidays. Now, although there is sufficient warning beforehand to make preparation for the last two contingencies, no one wishes to incur the additional expense of firing a new bench for so short a time only to have to abandon it again in a few days.

A device which fills the bill for just such emergencies is fully described by Mr. Frederick Egner, page 89 of the Question Box of the Ohio Gas Light Association and also in the AMERICAN GAS LIGHT JOURNAL, July 11, 1904, and by its use oil gas can be made in one of the coal gas retorts in such quantity as greatly to swell the daily output. We have no trouble in making 15,000 to 20,000 cubic feet of gas in 24 hours with one retort, and have been helped out of many a tight place thereby.

If too great a proportion of oil gas is made the coal gas is enriched to nearly 30-candle power and becomes quite smoky. If a tap is made just before the exhauster and a meter set with the cock opened to a point where 1½ per cent. to 2 per cent. of air is drawn in, it will lessen the smoke decidedly and also be quite beneficial to the oxtde in the purifying boxes. This easy method of making a quantity of oil gas is also useful when it is desired to decarbonize the retorts and the demand for gas would not allow the "laying off" of a retort for the time necessary to accomplish this, unless there were some way to add to the supply. For decarbonizing a steam jet is introduced into a retort inside of a 4-inch pipe, and 4 hours are generally required for the operation.

Although it may have nothing to do with the manufacture of gas, nevertheless an appearance of neatness around a retort house is at all times desirable. It attests to thorough and careful work, and cannot fail to exert a helpful influence over the men employed therein. At its very best the retort house has anything but a clean and inviting appearance, but if after the charges are thrown the charging floor is always carefully swept free of dust and soot accumulations, as well as the scales and the passage to the coal shed, if each tool is in its proper place instead of all the tools being scattered over the floor, if the exhauster and other apparatus are properly wiped and cared for, all concerned will have the satisfaction of knowing that, like the widow who contributed her mite, "They have done what they could."

[Concluded from Page 486.]

TWELFTH ANNUAL MEETING, PACIFIC COAST GAS ASSOCIATION.

HELD IN MECHANICS' INSTITUTE, SAN FRANCISCO, CAL., JULY 19 AND 20, 1904.

THIRD DAY—FINAL SESSION.

The technical sessions of the Convention were brought to a close by the presentation of the

EXPERIENCE DEPARTMENT,

which was read as follows by the Editor thereof, Mr. R. P. Valentine:

The "Experience Department" has this year been slightly more fortunate than usual. I say "slightly" because our better success this year can hardly be called success, if compared with the possibilities of this branch of the work. First of all, the editor wishes heartily to thank those members that have so kindly furnished us with material. It was gratifying, indeed, to receive so many responses to our solicitations, even if the majority of them did consist only in expressions of regret. Upon the whole, the encouragement received by us this year promises well for the department, and is an undoubtable sign that the prosperity of the Association and the interest taken in the work are increasing.

It will perhaps, be appropriate first to submit the following bits of history—ancient history, I might say; for the events described took place between the years 1858 and 1866. It will probably bring to the minds of the older members present many of the trials and tribulations with which they had to contend in the early days, when the thousand and one modern facilities and conveniences were lacking.

Dipped in Tar.—At the Richmond Company's Gas Works, Staten Island, N. Y., 1858, Samuel R. Brick, Jr., Manager. We installed a Milesian named John Curley, as superintendent. Sometimes John used to get into a difficulty that would rattle him. On one occasion the drips under the center seal became clogged after dark. The purifying pans began to blow, so in his quandary he sent for Sam, who lived near by, and who happened at the time to be attired in an evening dress-suit for some function on the Island. He came in a hurry. There was a trap door just ahead of the entrance to the purifying room, and a tar well immediately beneath it. Sam stepped in, went below to his armpits, was pulled out of the viscid mass and assisted in cleaning the drips.

His chief concern, after things were righted, was, "Where's my hat?" And to all queries concerning himself, his answer was, "Where's my hat?" If that tar well is still in existence, the hat may yet be found. It was ever after used by the men as a word of caution, to notify each other as to the presence of Sam—"Where's my hat?"

Saved by Chance.—At the Manhattan Works, New York city—1859—the coal received from the ships was brought to the yard in dump carts and dumped into a sheet-steel box, which rested in another steel box, snug fitting, to prevent pieces of coal falling between them. Both tops were flush with the surface of the ground. The inner box held about 2 tons, When filled it would be hoisted, after the manner of an elevator, some 40 feet, deposited on a 4-wheeled truck and run along a track until opposite the place on the pile where needed. The box was then hitched on a trolley, run by gravity out over the pile, the bottom sprung, and coal dumped. Several boxes were used, empties and loaded up and down. It was against orders for the men to go up on the elevator, for fear of an accident. This order was many times disregarded, and it so happened that one noon hour, after dinner, the cable broke when the car was about 30 feet high, with 8 men and a

full load, and, as a matter of course, down they went. Word was sent to the yard-master and weigher, who expected a few dead men and cripples to look after. It so happened, however, that the sudden fall compressed the air in the recess at the bottom of the elevator, forming an air cushion and preventing a shock. No harm was done outside of a scare. This accident was the suggestion which led one of the then numerous elevator companies to take out a patent on a safety cage depending on the principle of a compressed air cushion.

Blasting Powder in a Retort.—At the Marysville Gas Works, California, 1864.—At the 7 o'clock morning charging, I was standing in the retort house doorway reading the morning news, when suddenly I was blown out upon the sidewalk and the window slats blown into kindling wood. Smudio, the stoker (a Mexican), was staggering, waving his arms, and on fire, but making no sound. I ran in to do what I could. He pulled me to the douching tub, jumped in, rolled over to extinguish the fire in his clothing and then gasped for breath. This all happened in less time than it takes to tell it.

The cause: About this time we were beginning to use soft Australian coal at the works, and, as we afterward found, blasting powder from the mine, or ship's cargo, became mixed with the coal, as big as potatoes or small muskmelons. Smudio must have got a generous shovelful to have had such an effect, as his body was burned through three thicknesses of shirts. His eyes were saved by a broad-brimmed slouch hat that blew down over his face. The coal shed was marked where the coal lay, as another cargo was being received. About a year after, we got back into the powder coal again. We watched for the marks we had made on the side of the shed, but they had been blackened by coal dust and escaped our notice. At the 11 o'clock night charge Smudio was caught again. That ended his career as a gas man.

A Case of Osmosis.—At Marysville, 1866.—We were waited upon by Charley Patterson, superintendent of the water works, and asked if we had any water pipe connected in any way with our gas apparatus. We informed him that we had the water connected with our washer. He said that we would have to make some other arrangements, as the gas got back into their pipes and the customers were complaining. We thought it queer, as we at the works had not noticed anything of the kind, and invited him to test for himself. He found it free from taste as to gas, but insisted that we should put up a tank.

While considering the tank proposition, the water works people discovered a damp place between First and Second, on C street, about 2 or 3 blocks from our works, indicating a small leak. In digging down to it they found the gas and water mains in the same trench and a strong smell of gas. They called our attention to it, and, by the way, it was in this part of town that the gas taste was complained of. We straightened up our pipe, which had settled in the damp spot, recaulked, and the contamination ceased. Could it be attributed to that seeming paradox of "endosmosis and exosmosis?" I have never heard of a case of the kind before or since. The water pressure had about 40 or 50 feet head (a little over 20 pounds). The gas pressure was about fifteen 10ths. There is a nut to crack.

We will now turn our attention to the more practical experiences of to-day, which though they cannot claim the interest that we all manifest in the historical coal gas process, are, nevertheless, of far more benefit to the gas man of to-day.

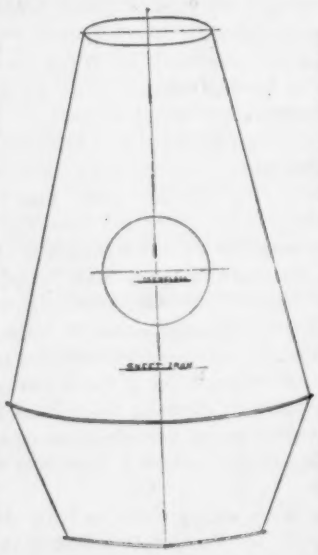
Naphthaline Stoppage.—Naphthaline experiences, we presume, are common, and the following will probably be of little interest. However, it caused us several hours of good, hard worry. Having never had any experience with naphthaline, our distribution man reported back much disturbed, upon finding an unaccountable stoppage. The location of the trouble was a mile from the works, in an important 3-inch main. After locating the stoppage as near as possible with the pressure gauge, we tapped the main, poured in a quantity of gasoline, and our trouble shortly disappeared. It has since occurred twice in the same place, and nowhere else on the system.

A Case Where Grit Failed.—I once had an experience with sand in wooden boxes, used to weigh down the holder, thus increasing the pressure. The boxes were arranged around the edge of the holder and the sand piled in, during the summer. The device worked excellently during the warm months, but one night a heavy rain came and brought trouble. The boxes had been constructed tight and waterproof, but the hot sun had caused the wood to shrink until large gaps were developed at the joints; that is, this was the case with the boxes on one side of the holder. It did not take the rainwater long to discover the condition of affairs, and, conspiring with the sand in the boxes, it very shortly arranged a silent elopement through the loose joints. The result was, that when the weight was released from one side, the other sank until the holder was almost upon its side. Quick action alone prevented the loss of all the gas on hand. The high side of the holder was immediately anchored and we began to make gas to our full limit. In the meantime the sandboxes were removed. In a short time the inflow of gas righted the holder and we were safe again. It was not long, however, before the boxes were replaced and filled with cobblestones.

An Expensive Bottle.—The following experience shows how a careless workman or an obtrusive bottle caused the expenditure of four thousand dollars. A 4-inch main, 3½ miles long, was laid to supply a small municipality at that distance from the gas works. The service along the line was at first excellent, but with the gradual increase in the number of customers the pressure decreased until it became so low that an immediate and effective remedy was demanded. It was natural to suppose the increase in the size of the main would alone remedy the evil, and so it was decided to replace the 4-inch main with an 8-inch one. The work was shortly undertaken, but had not progressed very far before the real cause of the trouble was discovered.

After removing one of the lengths of the pipe from the ditch, a round bottle, to which adhered a quantity of tar, slid from the end near the bell. This is what had produced the fall in pressure. It was simply another case of "too much bottle." Notwithstanding the fact that the real evil was discovered early in the job, it was decided to complete the work, and the expenditure proved a fortunate one.

Equalization of Pressure.—Our plant operated for several years with two holders and two sets of mains, one being called the new or high pressure (only 4-inch, though), the other the old or low pressure (2-inch). The low pressure holder was situated some distance from the works and had to be watched in order that the inlet valve might be closed when the holder was full. This required considerable time, and, as our pressure from the old holder was not enough to give satisfactory service throughout, we weighed same to within two-thirds of the new or works holder, opened all the valves and united the entire set of mains into one system, connecting it where there were no valves. The old holder was equipped with blocks of wood securely fastened to the holder uprights near the top, so that when the holder filled to this point it remained full until the works holder was exhausted, when the old holder stepped in automatically. The change did away with our pressure troubles and the necessity of watching the old holder for the purpose of opening and closing the inlet valve. It works to a nicety.



Gas Fuel for Incubators and Brooders.—Proprietors of artificial chicken hatcheries have for years been looking for something more satisfactory, safer cleaner and more reliable than kerosene to produce the little chick so wonderfully stored in the shell of an egg. Mechanical genius has placed the chick in a very independent position. In the shape of an egg, he is placed into an incubator and remains there for twenty-one days, when he breaks the shell and is then ready to fight the battles of existence. He gets no food for two long days and nights, and then the first that he indulges in is small particles of gravel, or grit. At the same time the little fellow is full of life and fully able to take care of himself, providing that his food is within his reach after the two days of fasting.

As a rule, the gas man is looking for business, and when his attention is directed to the application of gas in this large and open field, he manages in some way to accomplish his purpose. So it was with incubators and brooders. Gas is just what the chicken raisers have been looking for. To accomplish this purpose, the gas man has quite a responsibility on his hands for the following reasons: The gas must be of uniform candle power and must be delivered at an even pressure. The pressure, however, is the most important. The responsibility can be better realized when it is known that should the gas go out for any reason, without notice, the entire batch of eggs, which probably run into the thousands, at a price of 40 cents a dozen are likely to be a total loss. The season for hatching is during the months of August, September, October, November and December. The burners most generally

used in incubators are the No. 3 " B " Welsbach, with a tin shade like the drawing on page 526, and they should be furnished with a very fine adjusting valve, so that very slight changes can be made, as it is necessary that the temperature should be the same at all times. The device for heating brooders is a small boiler, generally made of sheet copper, with flues running through it to obtain the best efficiency. This boiler is connected with circulating pipes running through the brooder. The size of the burner depends on the size of the brooder. At a price of $1 per 1,000 cubic feet, gas will be used wherever available by the chicken hatchers, although it is slightly higher than kerosene. This kind of consumer is very desirable, for the reason that when gas consumption is lowest during the fall and winter months he uses the most, and is burning 24 hours each day.

An Experience with Purification.—Purification by modern methods has been made so simple that its cost is almost negligible, and the ready means of revivification or oxide of iron in the purifiers without removal or stirring has relieved the gas man's mind of many pangs of worry.

The purification goes merrily on, and when a purifying box shows a "color" on being tested by means of sugar-of-lead paper, it is evident that the oxide needs reviving, and the purifiers are changed, the cover raised, the plug placed in the top of the outlet pipe, and the steam jet exhauster begins the work of revivification by drawing air down through the oxide. Here is where the trouble begins. The process is too simple, and, in answer to the query, "How long does it take to revive the oxide?" the gas superintendent is apt to say one hour, two hours, three hours, or four hours, and sometimes it depends upon the amount of time available, or the time of day when the purifier is changed, and aside from the heating up and cooling down again of the oxide, due to the chemical action of reoxidation, there is no end point to show when the oxide is thoroughly revived and ready for use again.

This is a very long prelude leading up to an experience. The purifiers were changed regularly, one each day, and the revivification was applied with equal regularity, but at no time was the oxide thoroughly revived, and at the same time, the quantity of gas passing throngh the boxes was very erratic, so that when the greatest quantity of gas was passing through the boxes the superintendent was most actively engaged in other work, and while the minimum of gas was passing through the boxes the superintendent had ample time to observe the purification, no sulphurretted hydrogen was carried forward, and the gas was well purified. When this condition was discovered, the purifying-house man endeavored to remedy it by rapid rotation of changes, of revivification in place for shorter lengths of time, until finally he found himself with four foul purifiers. To overcome this difficulty, it became necessary hurriedly to remove the oxide from one box and replace it by fresh oxide, and then change the purifiers in regular rotation and revive the boxes by drawing air through them for a period of four or five hours, until they were finally brought back to working condition.

The moral of the experience lies in the fact that the purification, having become so comparatively inexpensive and so simple, it is never necessary to have any of the purifiers badly fouled, and if two purifiers are changed each day and thoroughly revived, one in the morning and one in the afternoon, it insures a large factor of safety in purification and precludes any possibility of distributing unpurified gas. Also, it emphasizes the importance of testing the purifiers with lead paper at a time when the maximum amount of gas is passing through them.

Experience with Landslide.—A complaint of "No gas," and, at the same time, of "leak," was reported during April, 1904, by the residents in the neighborhood shown in photograph No. 2.

The Company has a 4-inch iron main extending up the street shown in this picture, from which a 2-inch wrought iron main is taken at the street intersection marked with a cross, and runs up the hill to the left. On uncovering the connection, it was found that the 2-inch pipe had been shoved to the right about 6 inches past the 4-inch main, pulling the nipple out of the top of the 4-inch main, almost flattening the nipple. This was repaired and connected the same as before.

In a few days, another report from the same locality came, and, on uncovering the connection, it was found broken as before. This time the 2-inch connection was made with elbows and nipples, so as to form a swing joint, and allow about 12 inches play. At the same time, the 4-inch main was uncovered for some distance below this point for inspection. About 100 feet down the street from this 2-inch main, and opposite the point where the curb was buckled, raising it about a foot above ground, as shown plainly in picture No. 1 and indistinctly in picture No. 2, the 4-inch main was found raised and broken back of one of the bells. This was also repaired.

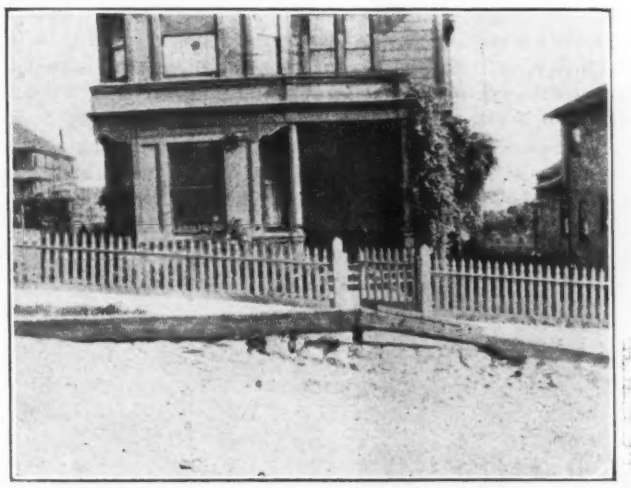


Photo No. 1.

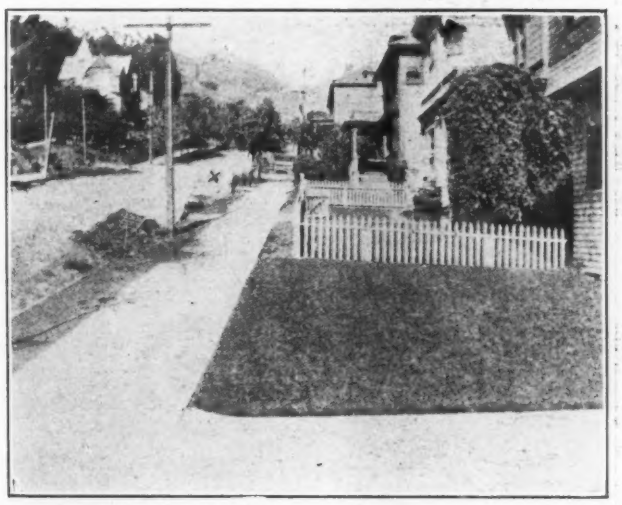


Photo No. 2.

A few days later "leak" and "no gas" were again reported. The connected was uncovered, and the 2-inch pipe was found shoved past the 4-inch main and swing joint broken, which means the 2-inch main must have moved at least 18 inches. This was repaired by putting a tee in the 4-inch main and running the 2-inch main directly into it and connecting with a lead joint.

In a few days the street gang was again called in response to "no gas" and "leak" complaint from this slippery neighborhood. The 4-inch main was found to be broken back of the tee into which the 2-inch pipe was connected. This time the connection was repaired as follows: A 4 by 3-inch cast iron tee was placed in the 4-inch main with the 3-inch bell looktng toward the 2-inch pipe, a piece of 3-inch wrought iron pipe, about 3 feet 6 inches long was made into this bell, and the 2-

Photo No. 3.

inch pipe was connected into this piece of 3-inch pipe with a lead joint, so as to form a telescope joint, allowing the 2-inch pipe to slide inside the 3-inch pipe, if sufficient pressure came. This joint is still doing business and the superintendent is indulging in a full night's rest.

Pictures No. 3 and 4 show some of the effects of the landslide on the nearby landscape. No. 3 was taken directly facing the original line of cement sidewalk, and shows the walk to have moved about a foot to the left; at the same time, the land was moving away from the camera, and the effect is shown on the house marked with a cross in No. 3 by the picture No. 4. The pressure is on the high side of the house, bulging the chimney on the low side.

Photo No. 4.

These pictures were taken one block away from our troublesome 2-inch connection, where the ground is about 40 feet higher. The land was sliding in two directions, west and south.

SAN FRANCISCO, CAL., July 16, 1904.

Mr. R. P. Valentine, Editor Experience Department, Pacific Coast Gas Association—My Dear Sir: I am in receipt of your recent favor in which you ask me to furnish you with my experience with the use of corncobs for the preparation of purifying material, and while the experience which I have had with same scarcely warrants the preparation of information for your department, I am pleased to give you such information as I have so far secured.

As you are doubtless aware, the sawdust which is ordinarily procurable on this Coast, when used for the preparation of iron oxide, is not always satisfactory, and very frequently soon disintegrates to a very fine and powdery condition, notwithstanding that it may have been very coarse when first used.

In large gas works and those wherein relief holders are used, this pulverized condition of oxide does not make very much difference, but in small plants where gas is passed directly from the gas making apparatus through purifiers and into the distributing holder, the fine purifying material causes considerable back pressure and annoyance, and necessitates more frequent attention to the purifying boxes than is sometimes convenient for the limited amount of labor employed in small gas works. This condition of affairs has caused me to be constantly on the lookout for a support for iron oxide which will not disintegrate, and I have thought of many substances which might be used.

Some time ago I learned that corncobs were being used for this purpose in the gas works at Bakersfield, and subsequently Mr. James Goodwin, the manager of the Bakersfield plant, sent me samples of same.

I determined to try the experiment of preparing iron oxide by using the ground corncobs in lieu of the sawdust ordinarily used and to try same in a works at Watsonville, which were then being built. The corncobs were procured with some little difficulty, and were ground in a very small mill which we borrowed from a farmer in the neighborhood.

The mill was operated by horse power, but owing to its very small size the work was very slowly done, and consequently attended with considerable expense.

The cobs were ground rather coarsely, the pieces ranging in sizes from that of a pea to say that of a hazelnut after which the oxide was prepared in the usual manner from copperas and other ingredients, and, generally speaking, in accordance with the formula which Mr. E. C. Jones gave to the Pacific Coast gas fraternity several years ago.

In the preparation of the oxide it was found that the copperas solution did not penetrate so deeply into the corncob pieces as it does with sawdust, and therefore less copperas is used, which to a certain extent has an advantage, as the cost of copperas is somewhat less. I believe, however, the efficiency will be fully as great with the lesser amount of copperas, as with sawdust, which requires a greater amount, as the iron oxide which attaches itself to the surface of the particles is all that is of any value in the purification of gas.

The batch of iron oxide which we prepared as above was only recently made and has not as yet been put in operation, but I have every reason to believe it will work very nicely and will not disintegrate, and if such is the case it will result in doing away with the annoyance due to the use of very fine oxide.

I believe it would be well to seek the result of the experiment made by the Bakersfield people on these same lines, as for some time past they have been using iron oxide so made, while so far my experience goes only to the preparation of same.

If corncobs are found to be a desirable substitute for sawdust, it will, of course, be found necessary to procure them cheaply and to also find an economical means of grinding same, all of which can, I think, be readily accomplished.

Trusting the above covers the points of your inquiry, I am,

Very truly, L. P. LOWE.

SAN FRANCISCO, CAL., July 16, 1894.

Mr. R. P. Valentine, Editor Experience Department, Pacific Coast Gas Association—My Dear Sir: It has occurred to me that possibly the members of the Pacific Coast Gas Association may be interested in learning of an experience with which I met while preparing for use several miles of wrought iron pipe which was subsequently laid for street main purposes at Watsonville, Cal.

As gas men are well aware, it is no infrequent occurrence to find lengths of pipe which come from the mills with imperfect welds, and consequently the seams are either open when received or not sufficiently strong to withstand the strains to which the pipe is subjected in ordinary laying and subsequent use, the imperfections existing notwithstanding the fact that the manufacturers of the pipe claim that each length thereof is hydraulically tested before leaving the mills.

I therefore concluded to test every length of pipe before laying same, and as I wished to do so with a non-elastic fluid, such as water, I determined to use ordinary kerosene oil for the purpose, as water would have caused more or less rusting of the pipes, which would subsequently cause scale and other annoying troubles, stoppages of burners, etc.

In addition to preventing this difficulty, the kerosene would have a tendency to stop the action of any oxidation which might then be taking place in the interior of the pipe, and it would also lessen particles of existing scale, so that same could be readily moved before the pipe was laid.

The testing was done with an improvised apparatus consisting of an ordinary spraying pump, such as is used for whitewashing purposes, the suction of which was placed in a half barrel sunk almost flush with the level of the ground, and in this the kerosene was placed. Connections with quick acting unions were placed on the outlet of the pump and the lengths of pipe to be tested were attached in such a manner as to permit of rapid removal.

The pipes were placed upon horses in a manner permitting one end to overhang the half barrel containing the kerosene, the further end being raised to a somewhat higher elevation, so that as the pipe was filled with kerosene all air was expelled. The further end of the pipe was closed with a fitting to which was attached a small valve, through which the air escaped, as the pipe was filled with kerosene. The operation of testing was as follows:

Several lengths of pipe were placed upon the improvised testing stand, as described above, and a gang of 2 men were employed in doing the work, one of whom attended to the pump and lower end of pipe, while

the other attended to the further end of same. The connection between pump and pipe was quickly made and coincident therewith the outer end of pipe was closed, save that the small valve on fitting was left open to permit of the escape of the air.

When all was in readiness the length of pipe was filled with kerosene by a few strokes of the pump, and as soon as the kerosene showed at the outer end the small relief valve was quickly closed, after which a stroke or two of the pump was sufficient to cause a gauge, which was attached to pump, to register from 150 to 200 pounds, this being the pressure under which the tests were made.

This pressure was maintained for a few moments by the man operating the pump, during which time his assistant passed along the length of the pipe, striking it sharp blows with a mallet, as is ordinarily done when making hydraulic tests.

The connection between pump and pipe was then removed and relief valve on opposite end opened, thus allowing the kerosene to return to the suction of the pump for repeated use.

As the kerosene was running from the length of pipe previously tested, the connections were made to a new length, and thus the work was very expeditiously and inexpensively performed.

Our experience in testing pipe in this manner proved valuable, as quite a number of defective lengths of pipe were found and discarded, in addition to which the application of the kerosene to the inside of the pipe was deemed very beneficial. Very truly, L. P. Lowe.

Device for Flashing Gas Light.

An apparently highly practical device for flashing gas lights, which is now being put on the market by the Qui Vive Company, of Grand Rapids, Mich., is shown in accompanying illustrations.

Fig. 1 shows the device with the upper part of the case broken away,

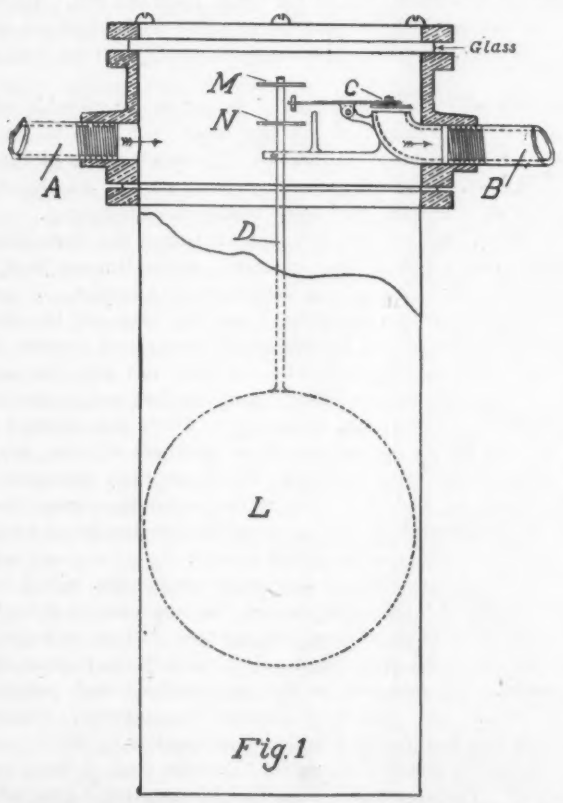


Fig. 1

exposing to view the valve and means for its operation. Fig. 2, a view at right angles to that of Fig. 1, shows the float chamber, the reservoir and the passage between these.

Its operation is as follows: Valve *C* being closed the pressure of the gas entering at *A* forces the liquid from chamber *K*, through tube *F*, into reservoir *J*. This lowers float *L*, and causes the disk *M*, on the rod *D*, to open valve *C*.

Gas now passes out to the burners (which are provided with pilot lights) and this reduces the gas pressure in the chamber sufficiently to allow part of the liquid to re-enter chamber *K*, raising the float and closing the valve, after which the operation is repeated.

It is difficult to suppose a more simple action or one that would be more positive or longer-lived. Any liquid may be used as long as it is not corrosive, but a light oil is recommended, and ordinary kerosene, besides being universally obtainable, works very well.

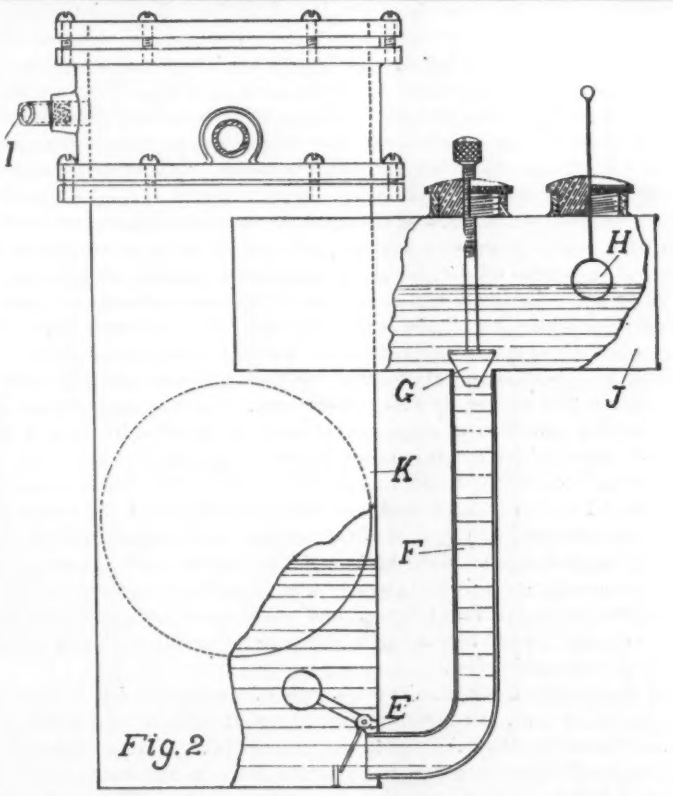


Fig. 2

The frequency of the flashes may be regulated by valve *G*, which controls the freedom with which the liquid passes to and fro.

I is a connection that may be used for the pilot lights, but a separate line of small pipe needs be run for these if, as in outdoor signs, they are required to run continuously.

Float *H* shows the motion of the liquid when in operation and also indicates when it is necessary to add to it. The amount of liquid may vary considerably without much disturbing the flashing operation, a surplus or shortage of liquid affecting merely the relative length of the "light" and "dark" periods at the burners, and also to some extent the pressure at the burners.

Should the liquid become so low that there would not be sufficient "head" in the reservoir to force the float upward to close the valve the lights will burn continuously, but no harm will be done. An extremely low liquid level would cause the safety valve *E*, which is normally held open by its float, to close and prevent the escape of gas through the reservoir.

The extreme simplicity, the capability of speed regulation, and the safe features of this device seem to promise it a successful career for the purpose for which it was designed.

The Coal Trade.

Fred. N. Saward, writing in a recent issue of *Iron Age* on this topic, says:

The Coal Trade of the World.—The world's progress in coal output and consumption is interesting, for the yearly figures now run up to 790,000 tons of 2,240 pounds. The United States is at the head, with 100,000,000 tons in excess of Great Britain's 230,000,000 tons. It is worthy of note that, in spite of the enormous coal production of the United States, its exports of this commodity are comparatively unimportant and do not appear to be increasing very rapidly. This, of course, is a natural outcome of its enormous home demand, and supports the view that national prosperity is more concerned with the utilization than with the export of its raw material. The consumption of coal in some of the chief consuming countries is shown in the following statement, in which the countries are given in the order of importance as coal consumers:

	1903.—Tons.
United States	316,029,000
United Kingdom	166,532,000
Germany	103,114,000
France	46,560,000
Russia	18,374,000
Belgium	21,432,000

It will be seen from these figures that the total consumption of coal in the United States is now nearly twice as great as in any other country.

Improving Trade Prospects in the United States.—So much for retrospect, and now as to the present and future condition of this trade in the United States. The dullness of the summer has passed away, and it may be stated that there is an improving tone to trade. The fact that the time is now at hand, or approaching, when coal is wanted for actual use induces a change in opinion of trade conditions, as against anything which has been heard during the past few weeks. It is evident enough that coal will be wanted in the usual large quantity, for all purposes, during the next 6 months, and there is no doubt that those consumers who wish to gain peace and comfort will put it away as early as possible. This is good advice, for the carrying companies are not much better prepared for handling traffic than they were a year ago, and there are other articles of merchandise besides coal. It is evident, from the reports which come to hand, that the move toward better things is gradually increasing in volume, and one must remember that the course of events in this country is seldom backward. The tonnage of coal of all kinds last year was a large one and of great value in every way; but with more settled conditions and lower values prevailing, there is not so much reason for complaint of the situation as a whole as some imagine. The fuel industry has been long misunderstood. by reason of ignorant criticism, but the gain along the line of its importance to the country is appreciable. Railroad companies find in it a large share of their prosperity, and this will grow as time goes along, while the markets are steadied by the fact that larger and more intelligent interests are now in control (or are becoming the controllers), and the public is being served at reasonable rates.

The Anthracite Outlook.—The tonnage of anthracite for 8 months was 38,212,288 tons, as compared with about 42,430,000 tons last year. For the 8 months ended August 31 the shipments of anthracite coal by the various anthracite roads were larger than in the corresponding period in any previous year with the exception of 1903. The total shipments so far in 1904 are approximately 4,000,000 tons less than in the same time in 1903, although they exceed 1902 by nearly 19,000,000 tons and are 3,500,000 tons in excess of 1901. The small shipments in 1902 were due to the strike. The results for the 8 months indicate that 1904 will go on record as one of the best in the history of the anthracite coal industry. The statistics show the following as the shipments of each interest:

Company.	Tons.—1904.
Philadelphia & Reading	7,440,188
Lehigh Valley	6,220,981
Central Railroad of New Jersey	4,836,166
Delaware, Lackawanna & Western	6,129,249
Delaware & Hudson	3,712,029
Pennsylvania Railroad	3,185,835
Erie	3,912,514
Ontario & Western	1,771,453
Delaware, Susquehanna & Schuylkill	1,003,873

It is said that the proportion of steam sizes of anthracite, putting pea in the list, comes at about one-third, and the low prices made this season on these are owing to the cheapness af bituminous coals of all grades. With an output of this fuei five times that of the total of hard coal, it is not to be wondered at that prices in time of depression such as the past season has witnessed should be cut to cost of production.

The Bituminous Market.—The bituminous market is still quiet, but there is a better tone and more inquiry for coal. Mills are starting up in all directions, and there will be a large increase in the use of bituminous coal this fall over the past summer. Prices remain on a low basis, and coal is still offering at prices that give no one any profit, for there cannot be anything in it at the range of $1.15 at the mines, at which certain coal has sold. Steam users are showing some inclination toward making contracts, and, while this is not very strong. they begin to feel that there may be a difference later on, and that it would be better to have some kind of a figure on what they use. Steam coal has been plentiful, but with increased activity in the business it will be more difficult to handle later on. More coal is being used than in the past, as a number of the factories throughout the country are opening up. As a rule, it is not very long after the "big fellows" start before the "little ones" think it is a good plan to get in some coal, and with the talk of car shortage, which has already commenced, it is advisable for the buyer to get in his orders now to get the most satisfactory treatment and the lowest price. The market is already stiffening on some of the better grades of Pennsylvania coal. The districts shipping from Hampton Roads and Baltimore have taken a great deal of trade this year, which is shown by the traffic returns, Norfolk & Western and Chesapeake & Ohio having made gains of 30 per cent. in some recent months. It is the remarkable development of the cheaply mined coal of the Virginias that has made this possible, and the Pennsylvania operators made figures that, as stated above, did not represent cost. While this is very interesting to the consumer, the fact remains that the producer has suffered, and the probable activity in general business this fall and winter, now said to be setting in, is the cheering sign for him; the average rate for the year will hardly be up to normal—that is, to figures realized before the boom set in a year or so ago.

The Twentieth Century Master Plumber.

[By Mr. John L. E. Firmin, San Francisco, Cal., at the St. Louis Convention, National Association Master Plumbers.]

Recently, in a trade paper, a writer gave expression to that which appears to be an ill-digested thought. He wrote that, in his opinion, the master plumber has arrived at that completed stage of progress where naught was left but to stand stationary or to recede. This view, in my opinion, is neither true nor logical. It is true, that in the wonders of man's progress, pace is not measured, nor is it always in the advance. But a broad conception of man's advancement teaches that retrograde steps are taken only to gain breath and to husband strength, whereby a more vigorous, determined march may be resumed. There is no decline; there can be no death, either to man or his works, until untold ages shall have passed. In obedience to that highest law, the world is better than ever before, and will continue to become still better and happier.

We may be asked, "What has this to do with the plumber? Plumbing is a trade, a business, a craftship." It has much to do, for if, as we believe, our calling exerts an influence for better or for worse upon man and his physical condition, then, logically, it must influence his intellectual and moral equipment. And here is one of the greatest lackings under which we labor; largely do we fumble in the dark, our instruments for research are ungainly and clumsy; but, in time, means of systematic research and deduction will be given us, and we shall intelligently and scientifically cull the good from the bad. There exists too large an element of guess and ideas; cause and effect are not truly digested; our conclusions are not wisely derived. But we shall soon do better.

This century will mark a degree of progress comparable only with those to follow. The gauge of the past shall not mark its time. We shall discover our present ignorance. Those elements of man's progress, which, each for itself, are now striking strings discordant, shall, as we become enlightened, give voice to chords of harmony.

He who labors, high or low, has rights inherent and inviolable; they are his rights, and we shall respect them; we shall more justly weigh "Man's inhumanity to man," and become more humane. What of our prisons, our reformatories, insane asylums, our hospitals, the tenements of the poor, and even of that foundation of society, our schools; do they even remotely approach perfection? Are they not still the cause, the effect of which society suffers from? And are they not, judged by even to-day's standard of plumbing, barbarous to a criminal degree?

What of the poor's tenements, those mothers of vice, moral and physical corruption—circumstance? Have we fully estimated its influence for good, for bad; have we remembered that upon the dying breath of the forsaken outcast may be carried the pestilence which shall smite to death the infant in the gilded cradle?

What of our misconception of the polite proprieties which render it improper to speak of "public necessities," saying naught of bath, fountain, park, playgrounds and breathing spaces? Satan, in his cunning, leeringly recognizes the demand of nature both in the higher and more vulgar phases. He provides public commodities and pastimes, and exacts the Devil's own toll with interest compounded. I but sketch, leaving it for you to give the solidity of perspective.

We'll change the phase of thought: "As the twig is bent, so is the tree inclined." The apprentice, that "awful question," granted; but it must be answered. Neither subterfuge nor selfishness can serve a lasting purpose. Here is an evil, and the correction lies in educating ourselves, the mechanic, the boy and the public mind. Each element must have justice. That the boy should be denied his right of following out one of the noblest instincts of man, the right to earn an honest livelihood, no just man will assert.

Political economy's laws are complex, wondrous; so wondrous they defy exact solution; evolution upon evolution will solve and still solve. The social balance elevated unwisely at one extremity, exactly in proportion depresses its fellow end; yet this is unnecessary, nor, as a whole, does progress so depress and elevate. Progress elevates the entire plane of man.

Education, in its true meaning, is the essence of civilization. Granting this, then how unwise and unjust to force an apprentice to be a

drone, to demand that he shall not acquire aptness with the very instrument of his trade, nor profit by the organized teachings of the technical school were unreasonable. Shall he, or we, be content with such restrictions? The youth of to-day has the right to demand that his starting point shall not be that of his forefathers; we should make conditions such that the boy of the hour shall be better educated, both as a man and as a mechanic, than we ourselves have been.

Why, as business men, do we struggle under false, unfair, foolish competition? Largely because of ignorance. An element of success is knowledge; yet, in our calling, how few of us have learned even the rudiments of business? That governing element named "cost" with us is a myth, a haphazard guess.

"Figures cannot lie." They will lie, unless the exact laws of computation are applied. System in business, while not all, must be a large factor; else failure. Competition properly exerted produces man's best efforts; but it may, and now does, preclude the best that is in man bearing fruit. Tricks of trade, unfair and double dealing, are what they are, disreputable; 'tis true they do bring a degree of physical comfort, but the reward of trickery is not substantial when gauged by that only true measure, the Golden Rule.

Circumstances we are the product of, but we have it within us to elevate circumstances, and we shall better them. Let each determine that his name shall be a "trade mark" meaning honest effort and reliability. The American manufacturer is discovering that a trade mark which is an evidence of fidelity, a guarantee, and means what it says, is his best advertisement, his richest capital. We have, many of us, still this lesson to learn.

"The laborer is worthy of his hire." This should, and it shall, apply to us coequally with any other laborer. We have the right to demand this, it is entirely praiseworthy for us to do so. We owe it to our families and ourselves, and should have but little patience with those who would deny us a fair reward for fair exertion.

As the bright light disperses crime, so does the printed word dispel ignorance and install knowledge. No craft or business has benefited to a higher degree under the influence of a congenial, wide awake and researching technical press than has ours. This is a feature which, perhaps in the abstract, has been recognized; but I believe we should go farther and that these seeds of knowledge, the trade press, should, by our association, be systematically circulated among the members of our craft, especially among the unaffiliated. I would have no favored exemplar, but circulate this paper to-day, and to-morrow another. The press, gaining power in bounds, has become, perhaps—such is its power to form ideas and will—the moulder of the very government; and if this be true of people, it will hold true with us. Personally, we seldom meet one another, but through the medium of the press we may be kept in constant touch.

"Our association." Who can for a moment reflect but with a feeling of high regard, perhaps a more ardent sentiment. Its infancy, so remote that some of us who at its birth were youths, now have become thoughtful with years, and now attaining its full manhood; 'tis manly, vigorous, ready and willing to keep step with the action of our younger element; and to them we would say, heed our counsel, but be ambitious.

What has our association accomplished? For answer, digest its records. It has given, and is giving, better protection to the master plumber than is enjoyed by any other mechanical business, and it has prevented injurious action being imposed upon us. It has established a betterment of sanitary conditions, not only in this nation, but in its possessions; nor in these alone, but has influenced for the better the civilized world. This may seem to be a broad assertion; but digest the evidence. We are brought into touch with one another and gradually we are learning that the "world's akin." It has cultivated a spirit of brotherhood which we ourselves have failed to adequately estimate.

We have fallen into error. Who has not? We shall fall into error Who shall not? But there remains that element for good, for advance, which is inherent in an organization based on equity and the rights of men. If those following us profit by our experience, labor as determinedly as we have, then their reward shall be beyond present estimation.

This paper, incomplete, crude, though it is, yet gives some thought. Beginning by taking issue with the belief that our labors are completed, it shall end by asking you to look about you. Here where we now stand are congregated the completest works of man, gathered from the hither and thither of the world, thus demonstrating the best that is in man. Here in St. Louis it is but a short infinitesimal space of time since the American Indians' wigwam was the limit of architecture. Remembering the vastness of our country, her so-termed deserts, her valleys, mountains and every feature, so capable, yet so diverse in their requirements, who can believe our work completed? Great as is the now of man's best work, it shall be far surpassed by his efforts of the morrow. The requirements of our country, of its people, will be so infinite that that which to-day appears to be perfection, will soon have become crude and imperfect.

There will be St. Louises where now expands the prairie, and the necessities of man must be brought to him and by him; and as these necessities arise, man shall rise also, and who among all shall have greater problems to solve, a wider field to cultivate, than the master plumber? It shall be his to give drink, to warm, to light, to cleanse, and much that tends to lift man from the primitive to civilized conditions shall be his to do. His walk in life is humble, but it is far-reaching, and it behooves him to equip himself fittingly for the task before him, and we believe that the very best equipment will be a true, broad and logical education.

The Status of the Electric Contractor.

By Mr. A. H. Scott.

When the International Electrical Congress closed in St. Louis last September, the attendance had been considerably augmented by the members of the National Electrical Contractors' Association of the United States, an organization that has specially arranged its fourth annual convention so that its members could attend the opening sessions of the congress. It seems fitting at such a time, therefore, to make brief note of this national organization of electrical contractors and the work it has accomplished, as well as that in which it is engaged, and the general effect of its work on electrical industries.

Prior to 1885 nearly all electrical apparatus was installed by the manufacturers or "parent companies," who also shared with the local lighting companies the work of installing interior wiring and appliances. But during the next 5 years the use of electricity as an illuminating agent became so general that a new field of industry was opened, a distinctly new line of business was created. Manufacturers and station managers realized that they were overburdened with a line of work that had grown to such proportions as to crowd the fields of production and operation, and in most cases they were glad to shift the overload on to the shoulders of the electrical contractors. Such a condition might indicate that from the starting point the pathway of the contractor was thickly strewn with roses; but, if the leaves had beauty of color and fragance of odor, the thorns were long and none the less sharp, so that they who undertook the journey unprotected by footwear of high grade invariably fell by the wayside and were in most cases, lost in the jungle.

Although the business of interior electric wiring became from the very beginning one of importance among the building trades, the pioneers in the new industry failed to receive the recognition to which they were entitled. Architects made no provision for their work; carpenters, plasterers and other contractors made not the slightest effort to protect from injury the conductors and appliances already installed; and even the wiremen felt themselves treated as outcasts by the artisans of other trades, who, taking the cue from their employers, made no attempt to conceal that feeling of superiority which, more effectually than any other class distinction, places a dividing line between skilled and unskilled labor.

The advent of the consulting engineers might have tended to ameliorate to some extent a condition that was becoming more undesirable from day to day, and possibly, in some cases, the man of figures may have reached out a helping hand to his more practical brother, but such occasions were rare. It is a fact that no general improvement was noticeable until after 1891, in which year two of New York's ablest contractors made a compact between themselves to support each other on such occasions as might seem to require joint action. The labor situation in New York was far from satisfactory during the few years prior to 1892. The men had affiliated with a labor union and seemed to be imbued with a spirit of unrest. They imagined their organized strength was much in excess of that developed later by actual test. Hence every possible interpretation of the first law of nature demanded organization by the contractors, 12 of whom formed in August, 1892, the Electrical Contractors' Association. In electrical contracting circles—which, by the way, are constantly expanding—the survivors of the original 12 are nowadays referred to as "The Old Guard," and to them belong the credit as well as the responsibility of having formed the nucleus of the powerful national organization of to-day.

For nearly a decade this little handful of men held firmly together, and even their enemies must admire their grim determination to obtain unaided the recognition to which they were entitled in the building

trades. Their methods were marked by a conservatism that is rarely found in young organizations. There was no mad rush for increase of membership. The business methods and reputation of each applicant were submitted to rigid examination, with the result that at the end of 10 years their membership amounted to a scant two dozen, but it included men who had made enviable records for integrity and honor and whose signatures at the end of a contract were recognized as an ample guarantee for its fulfillment.

Other electrical contractors' organizations were forming, and meanwhile members of "the old guard" were extending their efforts which bore fruit in August, 1899, in the form of the Electrical Contractors' Association of New York State. This association has done much for its membership and for the general public. Honest competition in business is encouraged, sharp or questionable business is decried and punished, and a spirit of friendship and goodwill extends from each member to the other, in sharp contrast with the old animosity that amounted often to personal hatred between excellent men whom circumstances had made competitors in business.

The wiremen soon felt the influence of the changed order of things and profited by it. They were now required to pass examination by competent experts as to their fitness for the work they were engaged to perform. The property owner or householder, knowing he would never see him again, had bidden affectionate adieu to the butcher or coal heaver who, in the guise of an electric wireman, had cheerfully attacked his buildings and decorations with axe, screwdriver and pliers and welcomed in his stead a competent mechanic who appeared on the scene equipped with a full kit of tools necessary to perform with neatness and dispatch whatever work might be desired.

Each association now directed its principal efforts toward the improvement of local conditions. The interests of their own members and those of their clients had been the principal consideration for all, and the members of each organization were well trained for the work in hand, but the new work was of greater magnitude than any yet attempted. The general public and contractors not affiliated with any of the existing organizations needed attention, the new conditions demanded greater power than was represented by any one organization and such power could be obtained only by a federation of all existing units. The task of formation was not a light one. Each association had claims of which it demanded recognition, varied interests had to be considered, and broad-minded but conservative leaders were needed to effect conciliation. It seems needless to say that men were found who were equal to the occasion and on the 15th day of July, 1901, in the city of Buffalo, one of the two founders was unanimously chosen to be the first president of the National Electrical Contractors' Association of the United States. During the short life of the National Association it has made a record that may well be envied by the older organizations in the building trades.

The first year of life was a busy one. Plans were considered and formed. Men gave their energy and time to the organization with a whole-heartedness that made them forget or subjugate their own affairs and, thanks to the care exercised in the selection of members, almost every one of them was exerting his best efforts in behalf of the new movement. Committees were organized and the men selected for such special service were chosen because of particular qualifications that specially fitted them for the work to be done.

The "Committee on Standards" secured valuable results in the manufacture of fittings and specialties that were previously of such size and form as might be convenient to individual makers, but that can now be obtained, from any of the leading manufacturers, of uniform dimension and design, both of which conform to the requirement of practical conditions. Manufacturers have been quick to see the advantages of such uniformity of production. Whereas in former years the various requirements of several markets compelled a multiplicity of detail for the production of one line of goods, the present conditions permit the production of a single design, based on practical observation, that is acceptable in most cases throughout the country.

At the close of the first year, when the fall of the president's gavel opened the second annual convention in Atlantic City, on July 24, 1902, he and his officers realized that although much had been done, there was still much to be accomplished, and notwithstanding all the sacrifices and all the labor, little more than a beginning had been made with the real work of the association. Toward the close of the convention the association celebrated its first birthday by again electing to the office of chief executive the man who had led it from the first short steps of infancy to the long, manly strides that had outdistanced many older bodies and that had won for it recognition from all the building trades. Since the beginning of the second year, the "Committee on Code" has accomplished excellent results from its co-operation with the Electrical Committee of the Underwriters' National Electric Association, which speedily recognized the power of the National Electrical Contractors' Association to aid it in its work of uplifting the standard of electrical construction, of strengthening the old, and building up new safeguards around that large portion of the public affected by the rapidly increasing use of electric current.

For a numbers of years the impression had prevailed in certain circles that the interests of the underwriters were at variance with those of the electrical contractor. Perhaps there was reason, in some cases, for the idea on one side, that the "contractor" had tried to squeeze past the rules and needed watching, and, from the other point of view, that the "inspector" had made too literal interpretation of one or more rules that "had never been intended to apply to a case such as that under discussion," possibly an idea that the "contractor" would make his work conform to the requirements of the rules only under compulsion, or that the "inspector" by his interpretation of the rules, had created unnecessary difficulties or had overburdened the work with needless technicalities; but, if such ideas prevailed, they are rapidly losing ground.

The following year was a notable one in the history of the building trades. Capitalists were prepared to release their holdings with unprecedented liberality. Extensive building operations were contemplated and in many cases actually begun, prospects were exceptionally bright for operators and workmen and the "Full Dinner Pail," with all that it implies, seemed assured for the next five years or longer, when suddenly the aspect of things changed, great black clouds appeared on the horizon and spread with amazing rapadity across the sky. Capital quickly took alarm and withdrew to await a clearing of the atmosphere. Building projects of great magnitude were suspended or entirely recalled, and the building contractors of New York found themselves exposed to the full fury of a storm, caused by the action of organized labor, that threatened to overthrow the work of years.

Each trade had an employers' organization that attempted to adjust the difficulties of its own members, and by reason of such division of power, with no central body, they were not in a position to cope with the powerful federation of labor unions. Clearly there was but one course to pursue; unity of mind and action was the one thing needed, a federation of employers must be formed and a leader must be chosen. The promoters of the contemplated movement realized that failure would be disastrous. It might mean financial ruin to business enterprises that absorbed the best energies of more than one generation. They knew that the leader of their choice must be a man of superior moral, physical and mental attainments; he must have even a superabundance of courage, dogged determination and physical endurance. He must hold the weaklings in line and must spur to greater effort the very men who would make him leader.

It would appear that there must have been plenty of such men among the older building trades, those trades whose members had even referred to the newcomer as an "inconsiderable quantity," but if those older trades held the man, he was not discovered. When the crisis came it gave full recognition to the National Electrical Contractors Association of the United States, for its president was unanimously elected to the presidency of the Building Trades Employers' Association of New York, to which office he has been recently elected for a second term.

Since July, 1903, the National Electrical Contractors' Association has progressed beyond expectation, the membership has increased in extraordinary degree and the growth would have been much greater but for that conservatism that insists on a membership comprising only those contractors who are in good standing in their respective communities. Under the direction of a Western president much valuable work has been accomplished in the past 14 months. The old work of the association has been prosecuted vigorously and trade arrangements have been consummated that are beneficial alike to manufacturers, dealers and contractors. The prospects of the association have never been so bright as now. Its growth of membership and its power among the building trades are assured facts, because its affairs are directed by men of integrity and honor who have high places in the business communities of this country.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

THE Wyandotte Gas Company, of Bethlehem and South Bethlehem, Pa., which has been in the hands of Mr. R. J. Flick as receiver since the 1st of the year, was recently sold under mortgage foreclosure, and reorganized under the title of the Bethlehem Consolidated Gas Company, with the following executive management: President, Liddon Flick; Vice-President, Morris Williams; Secretary and Treasurer, R. J. Flick. These are the same parties who were officers of the Wyandotte Company—the foreclosure being brought about by the excessive capitalization and the expenditure for plant improvement of the Wyandotte Company. The Bethlehem Consolidated Gas Company will enlarge and improve its manufacturing plant and extend its system of mains. The General Manager of the Company is Mr. Warren J. Flick. The territory supplied comprises the boroughs of Bethlehem, South Bethlehem, Fountain Hill and West Bethlehem. The last named borough was this summer consolidated with Bethlehem. In the past 3 years the Company has, under the present management, and in the territory which it serves, laid about 4 miles of mains, sold and installed over 1,000 gas ranges, piped many houses for an illuminating supply, and increased its output from 29,000,000 to 39,000,000 cubic feet per annum.

THE owners of the Flint (Mich.) Gas Light Company have sold their plant and business to a new corporation organized by Mr. Claude Hamilton, Secretary of the Michigan Trust Company, of Grand Rapids, Mich. The Company is to be capitalized in $300,000 bonds, and an equal amount of stock.

IT would seem that the main parties in interest regarding a gas supply for Barberton, O., are the proprietors of the Columbia Chemical Company of the named place. It is a good concern and its owners will be wise if they study the gas problem closely, At least 10 other settlements in Ohio are ready for gas works, but home investors, with the gilded glamor of electric lighting still blinding them, overlook the chance for good profit until some outside parties reach the scene. Then is heard the voice of the dog in the manger.

THE Los Angeles (Cal.) Gas and Electric Company has arranged for the putting down of an 8-inch, high pressure line for the supply of gas

to Long Beach. The distance is about 22 miles, and the pipe is to be of the wrought iron sort—wonder when the good folks on the Coast will consider estimates for cost?

MR. THOMAS CAMPBELL, who was connected with the Youngstown (O.) Gas and Electric Light Company for several years, has accepted the place of Superintendent of the gas and electric light plants operated by the State authorities at Columbus, O.

AT the annual meeting of the Woonsocket (R. I.) Gas Company, the Directors elected were: Edwin Aldrich, John W. Ellis, George M. Wells, E. A. Mongeon, D. C. Farnum, C. H. Darling, W. A. Cook, A. B. Rankin and C. E. Ballou.

HERE is the report of an interview held recently between Mr. Robert McMillan, Secretary of the Kansas City, Mo., Gas Company and a representative of the Kansas City *Star:* "The Kansas City, Mo., Gas Company has not acquired wells in the Fredonia district, nor does it intend to. We are too busy at home to hunt trouble elsewhere. The growth of Kansas City is taxing to the utmost the resources of the construction and equipment departments of the Company. By the end of the year 15 miles of new main will have been laid. The consumers of gas now number 25,000, and 18,000 gas stoves are in use. The Company is trying to keep up with the progress of the city and is extending its service as fast as possible."

IT was publicly announced the last week in September that a controlling interest in the Haverhill (Mass.) Electric Company, had been sold to the syndicate that operates electric plants in Malden and other points in Massachusetts. It is said the price paid was $175 per share. The capitalization of the Company is $153,000.

AT the annual meeting of the shareholders in the Corning (N.Y.) Gas and Electric Company, the officers chosen were: Directors, A. M. Young, S. L. Keeney, H. L. Merry, M. J. Warner, Paul T. Brady and W. K. Archbold; President, A. M. Young; Treasurer, M. J. Warner; Secretary, H. L. Merry.

CONSTRUCTION work on the plant of the Sea Cliff and Glen Cove (L. I.) Gas Company is said to be well underway. In fact, the promoters declare that gas will be supplied to the residents by December 1st.

THE Toronto (Ont.) City Council has named October 23d as the day on which the voters shall decide whether or not the city shall bid for a portion or all the new stock to be issued by the Consumers Gas Company, of Toronto.

THE Covina Valley Gas Company, of Covina, Cal., has been incorporated by Messrs. J. H. Coolman, J. O. Houser, J. D. Reed, H. M. Houser and C. E. Crawford. It is capitalized in $50,000, and its headquarters are to be in Covina.

AT the seventh annual meeting of the National Acetylene Association, held in St. Louis, Mo., about a fortnight ago, the officers elected were: President, A. Dairs, Elkhart, Ind.; Vice-President, A. C. Einstein, St. Louis; Secretary and Treasurer, Nelson Litten, Chicago.

FROM every indication it would appear that the Oshkosh (Wis.) Gas Light Company will take over the properties of the Oshkosh Electric Light and Power Company. The latter were sold some time ago at receiver's sale for $215,000.

THE Ohio Gas Meter Company, with headquarters in Cleveland, has been organized with a capital of $10,000. The incorporators are, J. Feigenbutz, E. A. Hopkins, E. Rooke, John U. Stockwell and E. B. Strong.

THE city council of Pana, Ills., has granted a franchise to the promoters of the Pana Gas Light, Fuel and Heating Company. A. B. Corman, of Springfield, Ills., seems the chief party in interest. The proposed capital is $30,000.

THE Bucksport Lighting Company, to supply gas to the residents of Bucksport, Me., has been organized. The officers of the concern are: President, H. L. Cram; Treasurer, A. J. Desmond, both of Portland, Me.

AT the annual meeting of the shareholders in the Granville (N. Y.) Electric Light and Gas Company, the officers elected were: President, Frank T. Pember; Vice-President, B. G. Higley; Secretary and Treasurer, E. R. Norton.

A CORRESPONDENT in Jamaica, L. I., says: "At a recent meeting of he Village Board of Trustees, Rockville Center, L. I., considerable discussion was indulged in over the action of the Queens Borough Electric Light and Gas Company, of Far Rockaway, L. I., in having dug trenches and distributed gas mains along the Southern Boulevard in Rockville Center. President Macy and Counsellor Wm. Wiletts, Jr., representing the Company, were present, and the latter stated that the mains were laid under a franchise granted by the Board of Supervisors of the county of Nassau early this year covering all county roads. The right to grant such franchises on county roads running through incorporated villages, by the Board of Supervisors was disputed by the Village Board of Trustees, and they asked the Gas Company, that inasmuch as the town of Hempstead had questioned the validity of the franchise of the Company, granted by a former Town Board in 1889, and the matter had been referred to a referee, whose decision, as it was acticipated, would be handed down shortly, the Gas Company was requested to refrain from laying its gas mains on the thoroughfare mentioned, until such decision had been rendered, so that the village of Rockville Center would not be compelled to go to the expense of securing an injunction, as it certainly would do unless the Company discontinued its work. After a lengthy discussion, during which the question was argued both pro and con, the Gas Company agreed to discontinue its work on the Southern boulevard until a decision in the matter had been rendered, but it was allowed the privilege of laying its mains in the trench already dug, a distance of nearly 300 feet, it being distinctly understood that such permission was granted in consideration of the fact that it was without prejudice to the rights of the village."

AT the urgent solicitation of Manager W. H. Snow, in charge of the municipal gas and electric light plants of the city of Holyoke, Mass., the authorities have virtually assented to the construction of a new storage holder, the estimated cost of which is put at $70,000. The output at Holyoke is getting close to the 400,000 mark, maximum.

THE Trustees of the village of Bronxville, N. Y., have authorized the Westchester Lighting Company to pipe the streets. The agreement specifies that a rate in excess of $1.60 per 1,000 cubic feet may not be charged.

MR. LEWIS LEWIS, at one time well known in the gas business of New York, through his connection with the old Utica (N. Y.) Gas Company, died in Utica, the morning of September 20th. He was in his 67th year, having been born in North Wales, May 24, 1838. He came to America in 1857, locating in Utica.

SPECIAL JUDGE CARROLL, of the Franklin (Ky.) Circuit Court recently rendered judgment in the case of the City of Frankfort vs. the Capital Gas and Electric Light Company, of that city, the point at issue being the right to levy and collect a franchise tax. The judge held that, in so far as the franchise of the gas division of the company's business was concerned, the law did not apply, but that it was binding regarding the electric section. The oddity of the decision is in the laws that existed as between the original formation of the Capital City Gas Company and of its subsequent electric addition.

THE authorities of Richmond, Va., have agreed to the construction of a 2,000,000 cubic feet capacity holder, for the better operation of the municipal works. The holder is to be located on the site bounded by Oak, Moor, Graham and William streets.

A PETITION for the formal dissolution of the Equitable Gas Light Company, of San Francisco, has been filed. And here is ended another chapter the pages of which reveal much of deceit and unscrupulousness.

MR. T. J. PRESTON is in charge of the preliminaries respecting the practical end of the proposition to distribute gas in Ocean Grove, N. J.

A CORRESPONDENT in Wilkes-Barre, Pa., forwards the following: "As the result of negotiations which have been going on for about 2 months past, the local parties owning controlling interests in the stocks of the Gas Company, of Luzerne County, Pa., which supplies gas to the public of this city and in the Wyoming Valley Electric Light, Heat and Power Company, which supplies electric light and power in the same territory, have sold their entire holdings in both companies to a syndicate of capitalists composed of Forest & Co., bankers, and Charles R. Miller, of Philadelphia, and J. G. White Company (incorporated) of New York, the latter Company being owners and operators of many similar enterprises, notably the Electric Light and Power Company, of Montreal, Canada, and other large concerns. The price paid is $50 per share for the gas stock and $20 per share for the electric light stock, with the agreement on the part of the purchasers to take all stock of both Companies that is tendered them by the pool or majority holders, within a limited time, at the same prices. The Ashley Electric Light Company which recently secured a franchise to enter this city, is also included in the deal. The purchase is being made in the name

(*Continued on page* 534.)

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

THOS. J. CUNNINGHAM,
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of the Susquehanna Light Company, a Delaware corporation, but it is understood that all the stock will be turned over to a new corporation to be called the Wilkes-Barre Gas and Electric Company, a consolidation of all three Companies under the Pennsylvania law. This Company will have a capital stock of $1,500,000, and an authorized bond issue of $3,000,000, of which $1,000,000 will be deposited with the trustee of the mortgage to provide for retiring at maturity the present outstanding bonds of all the Companies, $1,000,000 will be now used to pay for the stock of the constituent Companies, and provide about $325,000 for immediate additions and improvements and the balance reserved for future acquisitions. Among the immediate improvements contemplated is a new gasholder with a capacity of about 400,000 cubic feet, gas mains laid in streets not already occupied and the gas making plant enlarged. Large additions will also be made to the electric light plant and the present electric sub-station on Washington street abandoned and the gas and electric business of this city and the immediate surrounding territory pushed and developed. The President of both the old Companies of this city is Abraham Nesbitt; Secretary and Treasurer, E. W. Mulligan; General Manager, John Flanigan. The officers of both Companies will all resign and the administration and management will be entirely with the new owners."

The Market for Gas Securities.

There was some active trading in Consolidated during the week, and it brought very little consolation or profit to those on the short side, for it was all done at prices well over the ones received at the close last Friday. The figures then were 203½ to 203¾; to-day (Friday) the closing was 210⅞ to 211. Various reasons have been advanced for the sharp rise, the chief thought being an increase in the dividend rate, but we do not believe that is worthy of serious consideration. The cleaning-up of a certain short interest and the steady taking of the stock for investment are undoubtedly the moving factors.

Brooklyn Union was dealt in sparingly between 220½ and 223½. The closing to-day was reported 220 to 225. Peoples, of Chicago, is strong, at 102⅞ to 103¾. Cincinnati Gas and Electric climbed to 109, and its upward course is not liable to be checked for some time. The Company's business is showing a gain amounting to 15 per cent. and over. Baltimore Consolidated is steady, and 80 is freely bid for Laclede preferred. Consolidated of New Jersey 5's are saleable around the 90 mark.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

OCTOBER 3.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated	$73,177,000	100	210⅞	211
Central Union, Bonds, 5's.	3,000,000	1,000	106½	106⅝
Equitable Bonds, 6's	1,000,000	1,000	105	..
" 1st Con. 5's	2,300,000	1,000	118	120
Metropolitan	658,000	..	108	112
Mutual	3,500,000	100	270	300
Municipal Bonds	750,000	..	..	..
New Amsterdam Gas Co. .. Bonds, 5's	11,000,000	1,000	108¼	108¾
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	35	..
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	..	..	..
Northern Union, Bonds, 5's.	1,250,000	1,000	104½	106½
New York and East River .. Bonds 1st 5's	3,500,000	1,000	111	113
" 1st Con. 5's	1,500,000	..	106	108
Standard	5,000,000	100	125	130
Preferred	5,000,000	100	145	155
Bonds, 1st Mortgage, 5's	1,500,000	1,000	116	117
Yonkers	299,650	500	130	..
Out-of-Town Companies.				
Brooklyn Union	15,000,000	100	220	225
" " Bonds (5's)	15,000,000	1,000	118	115
Bay State	50,000,000	50	—	—
" Income Bonds	2,000,000	1,000	..	75
Binghamton Gas Works	450,000	100	28	30
" 1st Mtg. 5's	500,000	1,000	93	96
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	4	4¼
" " Bonds, 5's	5,250,000	1,000	12¾	.
Capital, Sacramento Bonds (6's)	500,000	50	..	35
	150,000	1,000	..	..
Chicago Gas Co. Guaranteed Gold Bonds	7,650,000	1,000	104	104¼
Cincinnati Gas and Electric Co	29,500,000	100	109	109½
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	97¼	99
Columbus (O.) Gas Lt. & Heating Co	1,682,780	100	88¼	89¼
Preferred	3,026,500	100	107½	109
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	79½	81
Mortgage, 6's	3,000,000	..	..	118
Chesapeake, 1st 5's	1,000,000	..	..	..
Equitable, 1st 6's	910,000	..	..	..
Consolidated, 1st 5's	1,490 000	..	..	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
" Con. Mtg. 5's	980,000	1,000	89½	92
Consolidated G. & E. Co.'s. Little Falls, N.Y.	90,000	100	..	100
Bonds	75,000	..	..	100
Detroit City Gas Co	4,825,800	50	..	50
" Prior Lien 5's	5,803,000	1,000	99¼	100
Detroit Gas Co., 5's	961,000	1,000	75	75¾
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	..	101
Essex and Hudson Gas Co.	6,500,000	..	39	40
Fort Wayne	2,000,000	..	..	..
" Bonds	2,000,000	..	35	..
Grand Rapids Gas Lt. Co. 1st Mtg. 5's	1,225,600	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	..	88	92
" Bonds, 5's	10,500,000	..	105¼	106
Indianapolis	2,000,000	..	65	68
" Bonds, 6's	2,650,000	..	107	109
Jackson Gas Co	250,000	50	82	.
" 1st Mtg. 5's	200,000	1,000	101	102¼
Kansas City Gas Light Co., of Missouri	5,000,000	100	..	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	..	..
Preferred	2,500,000	100	80	100
Bonds	10,000,000	1,000	109¼	110
Lafayette Gas Co., Ind.	1,000,000	100	..	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	138	140
Madison Gas & Elec. Co. " 1st Mtg. 6's	350,000	1,000	107½	108½
" 6 per cent. scrip, due 1910	100,000	25	85	87
Montreal, Canada	2,000,000	100	218	218¾
Nashville Gas Lt. Co.	1,000,000	100	110	..
Newark, N. J., Con. Gas Co.	6,000,000	..	56	58
Bonds, 6's	4,600,000	..	105	105¾
New Haven	1,000,000	25	64	70
Peoples G. L. & Coke Co., of Chicago	25,000,000	100	102¾	103¼
Peoples Gas Lt. & Coke Co., Chicago, 1st Mortgage	20,100,000	1,000	..	..
2d "	2,500,000	1,000	104	.
Rochester Gas & Elec. Co..	2,150,000	50	88	..
Preferred	2,150,000	50	118	..
Consolidated 5's	2,000,000	..	87¼	90
San Francisco, Cal.	15,800,000	100	58½	58¾
St. Joseph Gas Co. " 1st Mtg. 5's	751,000	1,000	94	96
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgage 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	113½	115
General Mortgage, 5's	2,465,000	1,000	92	93
Syracuse, N. Y.	1,975,000	100	46	48
Bonds	2,047 000	1,000	94	96
Washington, D. C	2,600,000	20	287½	288¾
First mortgage 6's	600,000	..	..	..
Western, Milwaukee	4,000,000	..	..	..
Wilmington, Del.	600,000	50	230	..

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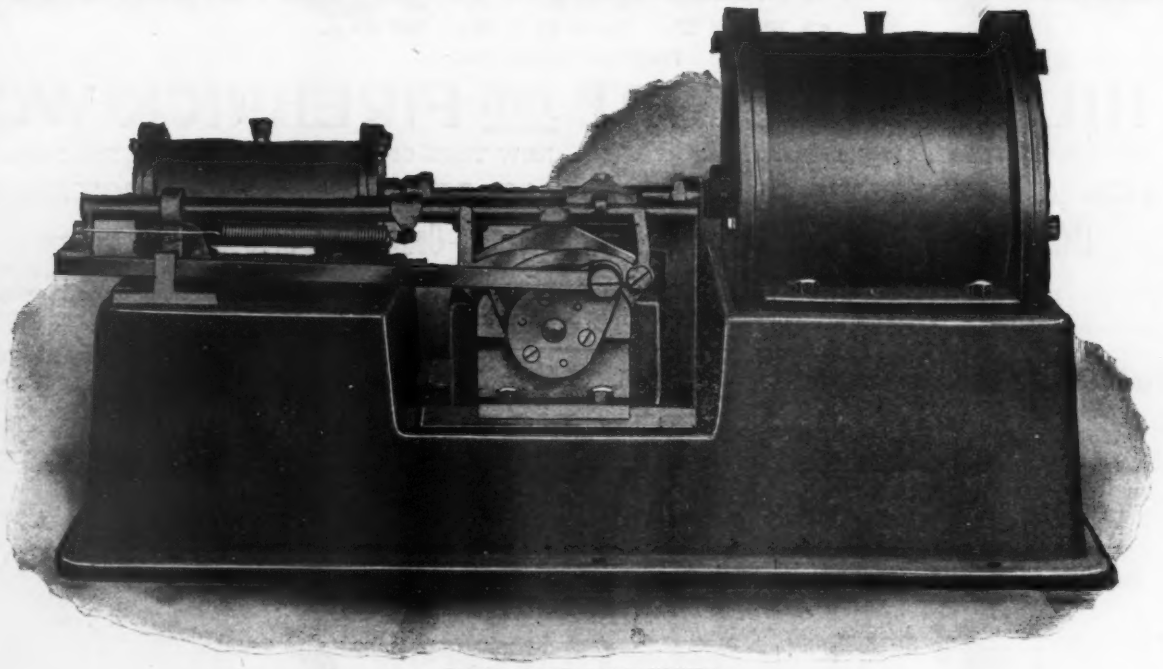

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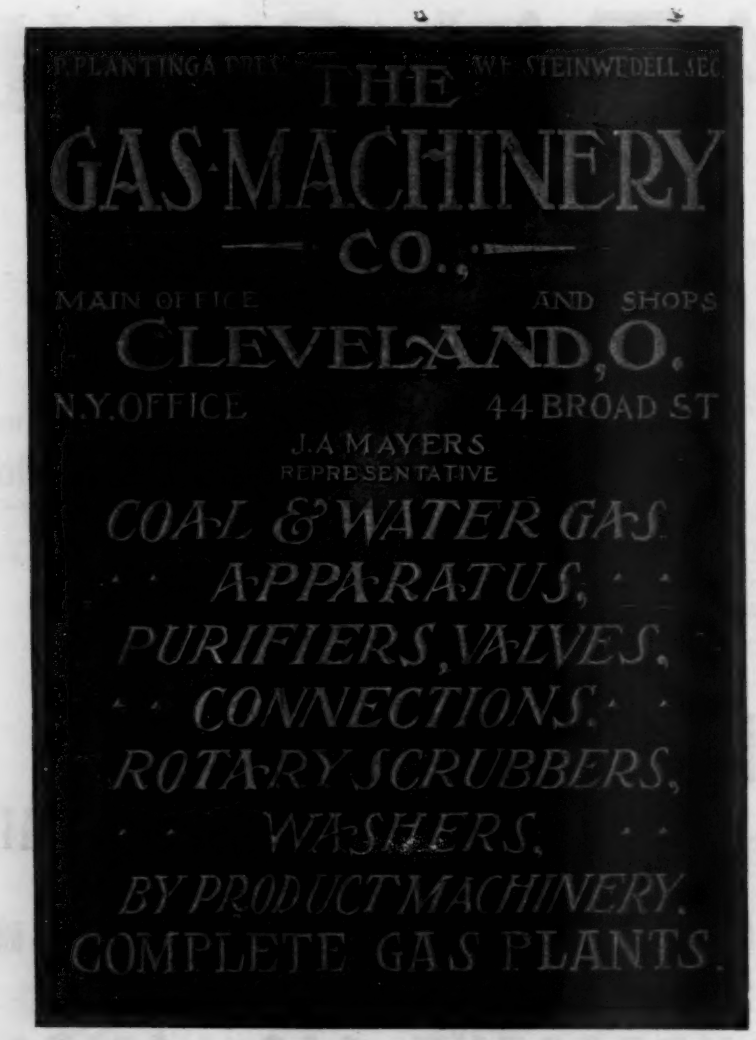

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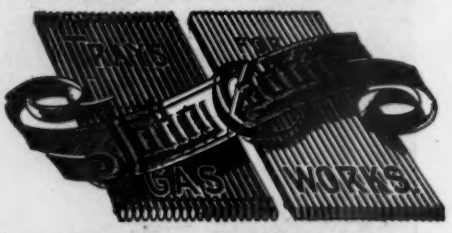

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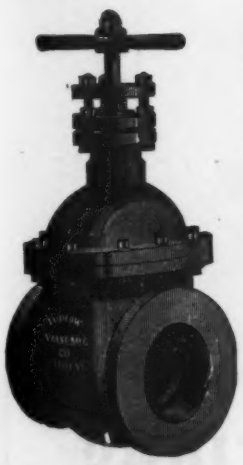

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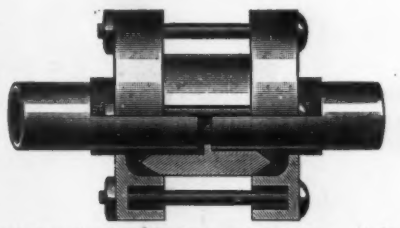

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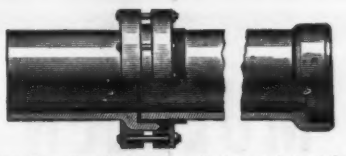

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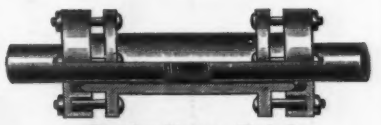

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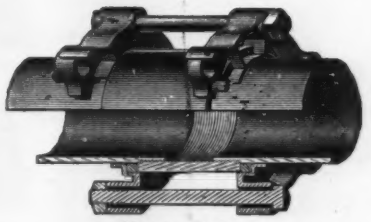

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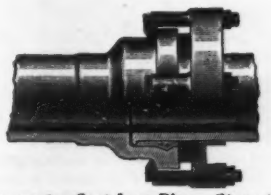

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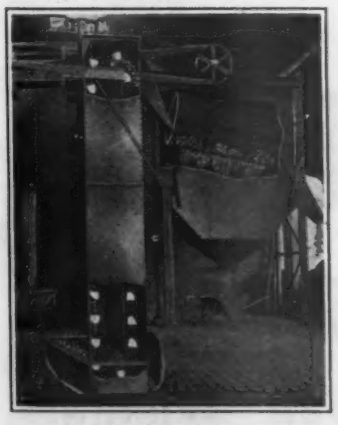

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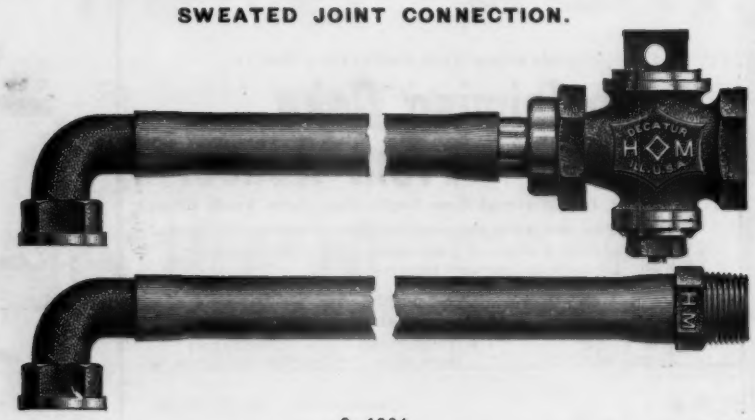

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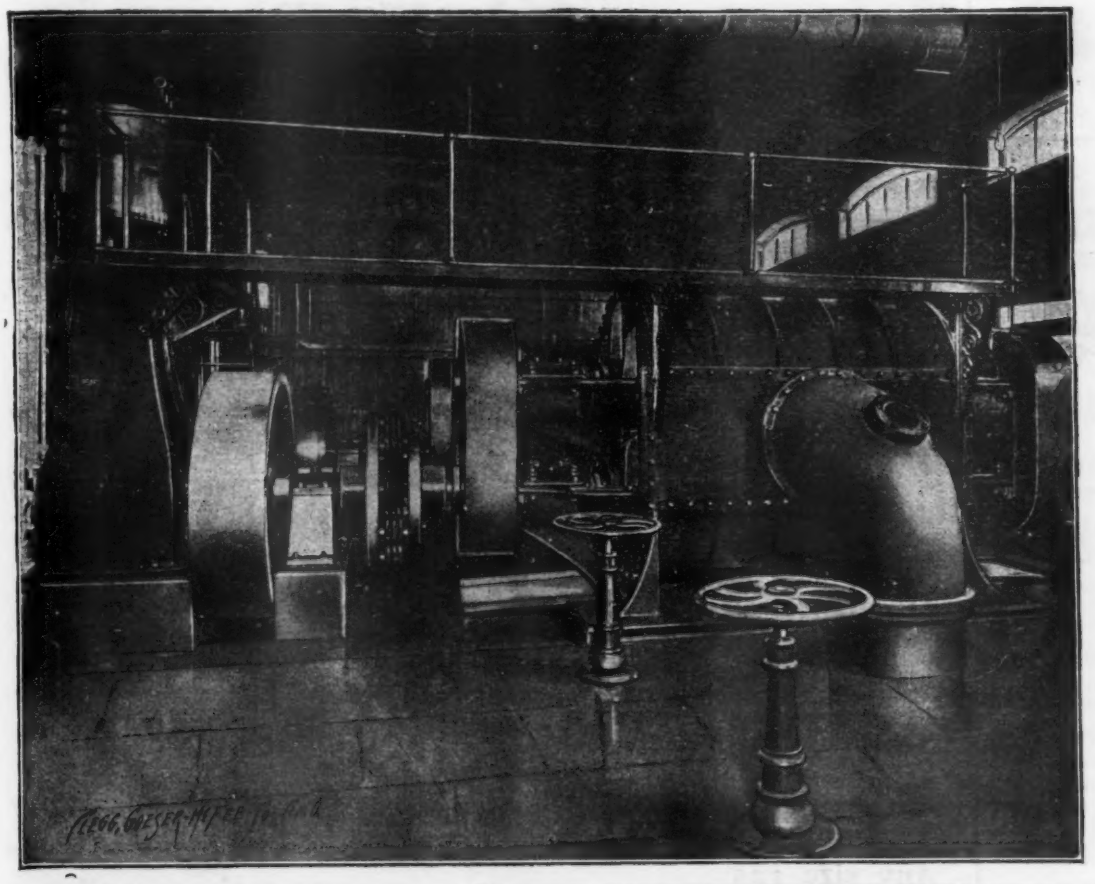

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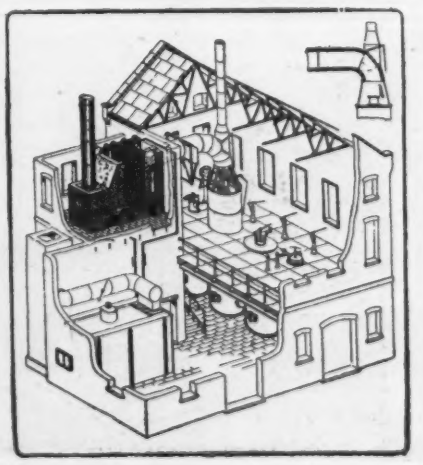

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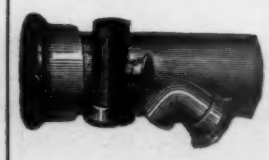

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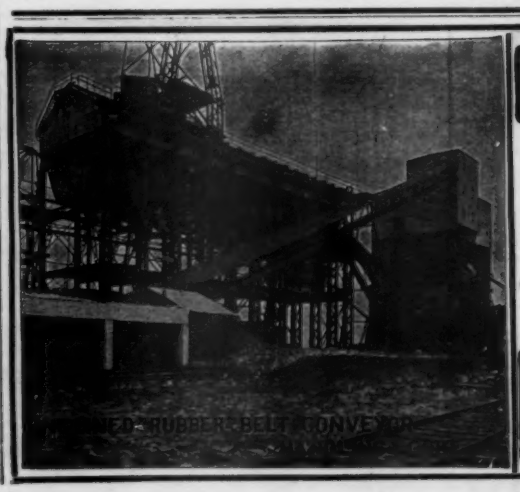

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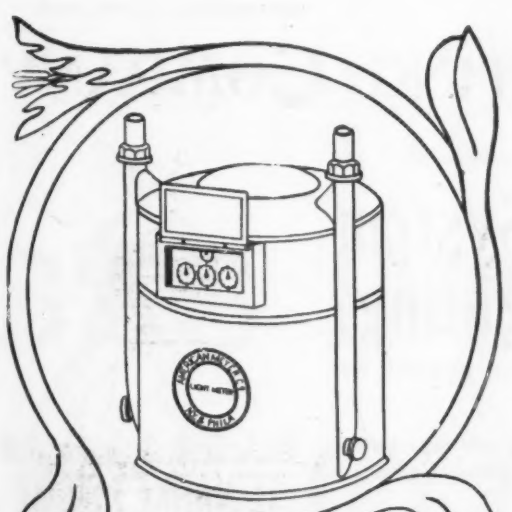
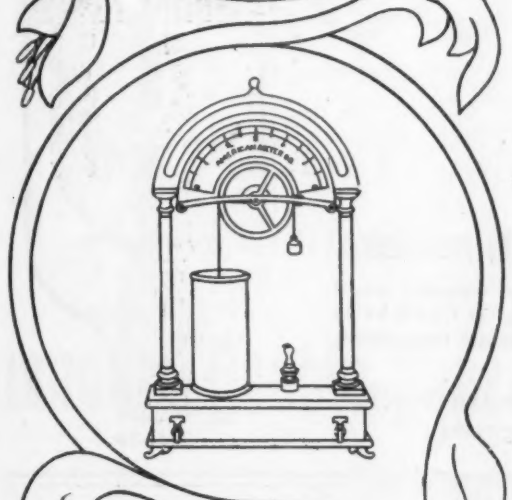
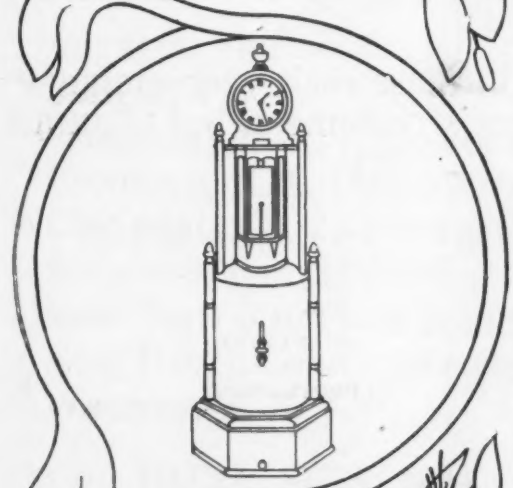
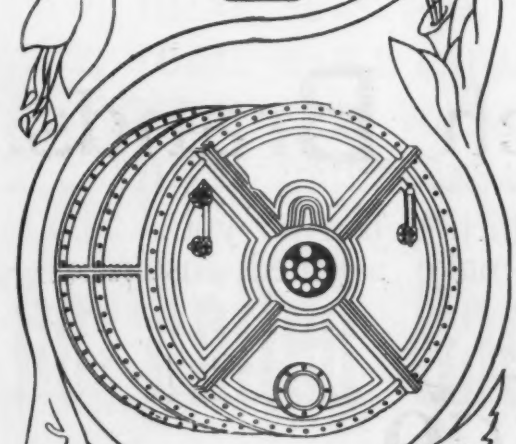
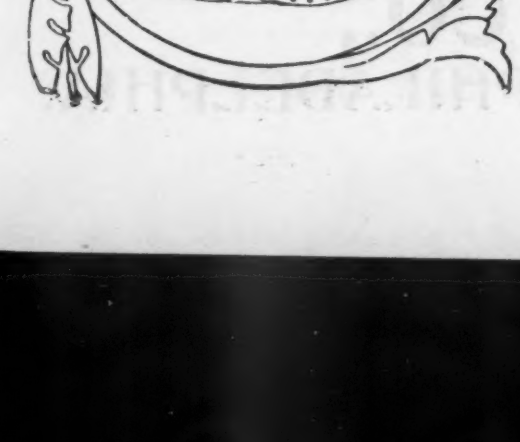










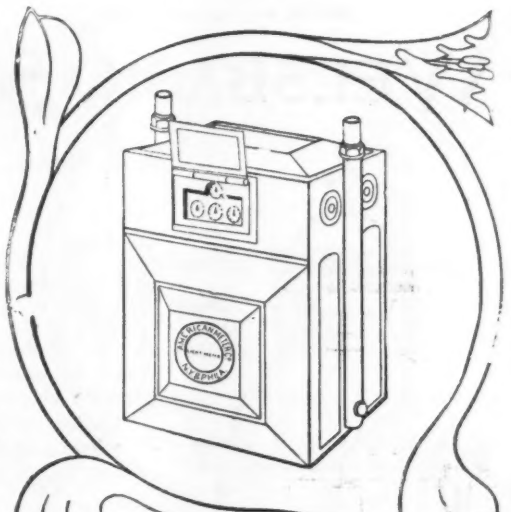
PUBLIC LIGHTING TABLE.

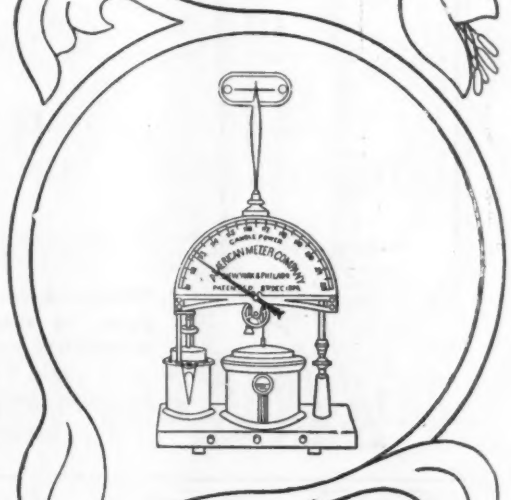
OCTOBER, 1904.

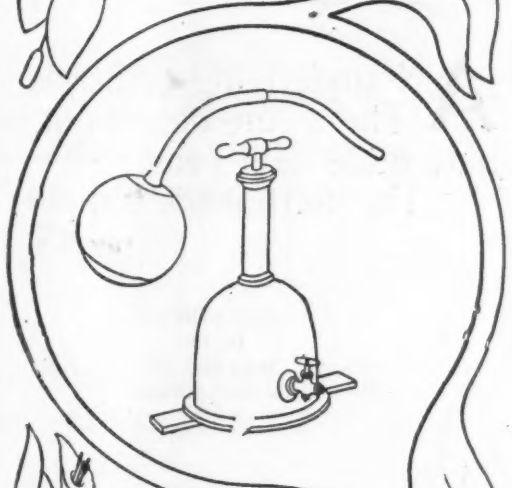
Day of Week.	Table No. 1. FOLLOWING THE MOON. Date.	Light.	Extinguish.	Table No. 2. NEW YORK CITY. ALL NIGHT LIGHTING. Light.	Extinguish.
				P.M.	A.M.
Sat.	1	6.20 PM	11.30 PM	5.30	5.00
Sun.	2	6.10 LQ	12.20 AM	5.30	5.00
Mon.	3	6.10	1.30	5.30	5.00
Tue.	4	6.10	2.30	5.30	5.00
Wed.	5	6.10	5.00	5.30	5.00
Thu.	6	6.10	5.00	5.30	5.00
Fri.	7	6.10	5.00	5.30	5.00
Sat.	8	6.10 NM	5.00	5.20	5.10
Sun.	9	6.00	5.10	5.20	5.10
Mon.	10	6.00	5.10	5.20	5.10
Tue.	11	6.00	5.10	5.20	5.10
Wed.	12	6.00	5.10	5.20	5.10
Thu.	13	8.00	5.10	5.20	5.10
Fri.	14	9.00	5.10	5.20	5.10
Sat.	15	9.50 FQ	5.10	5.10	5.20
Sun	16	10.50	5.10	5.10	5.20
Mon.	17	11.40	5.10	5.10	5.20
Tue.	18	12.40 AM	5.10	5.10	5.20
Wed.	19	1.30	5.10	5.10	5.20
Thu.	20	2.30	5.10	5.10	5.20
Fri.	21	3.20	5.10	5.10	5.20
Sat.	22	No L.	No L.	5.00	5.30
Sun.	23	No L. FM	No L.	5.00	5.30
Mon.	24	No L.	No L.	5.00	5.30
Tue.	25	5.40 PM	7.10 PM	5.00	5.30
Wed.	26	5.40	7.50	5.00	5.30
Thu.	27	5.40	8.30	5.00	5.30
Fri.	28	5.40	9.20	5.00	5.30
Sat.	29	5.40	10.20	4.45	5.35
Sun.	30	5.30	11.10	4.45	5.35
Mon.	31	5.30 LQ	12.20 AM	4.45	5.35

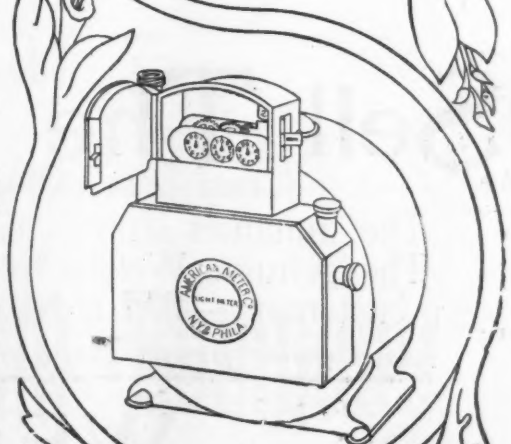
TOTAL HOURS LIGHTING DURING 1904.

By Table No. 1.	Hrs. Min.	By Table No. 2.	Hrs. Min.
January	225.00	January	423.20
February	205.40	February	367.40
March	187.40	March	355.35
April	169.50	April	298.50
May	152.30	May	264.50
June	137.20	June	234.25
July	138.50	July	243.45
August	151.00	August	280.25
September	164.40	September	321.15
October	191.30	October	374.30
November	210.30	November	401.40
December	237.10	December	433.45
Total, yr.	2171.40	Total, yr.	4000.00





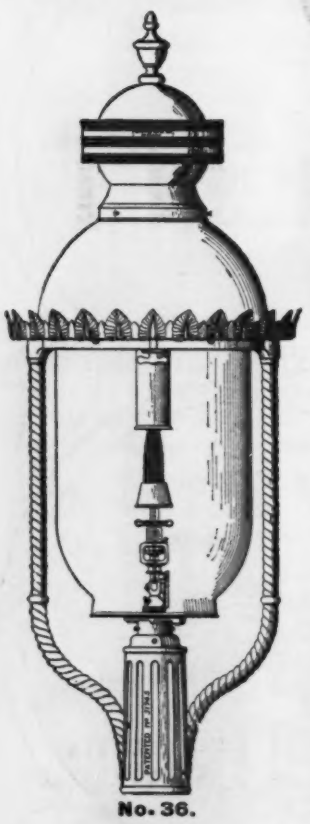




NEW YORK, 97 Liberty Street. BOSTON, 814 Beacon Building. PHILADELPHIA, Bread and Arch Streets. ST. LOUIS, 712 Roe Building. CHICAGO, Foot of Orleans Street. SAN FRANCISCO, 712 Polk Street.

WELSBACH STREET LIGHTING COMPANY

.... OF AMERICA ....



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New York City (14th contract).
New Haven Conn. (2d contract).
Watertown, N. Y.
Tampa, Fla. (3d contract).
Westchester, N. Y. (3d contract).
Bridgeport, Conn. (2d contract).
St. Paul, Minn. (2d contract).
Harrisburg, Pa.
Pelham, N. Y.
Reading, Pa.
Springfield, Mass. (2d contract).
Lynn, Mass. (5th contract).

TOTAL SETS, 1904, ... 35
TOTAL DAILY CAPACITY, 1904, . . 50,400,000 cubic feet.
TOTAL SETS TO DATE, ... 543
TOTAL DAILY CAPACITY, . . . 413,180,000 cubic feet.

The United Gas Improvement Company,

Broad and Arch Streets, Philadelphia.

Established 1858. Incorporated 1890.
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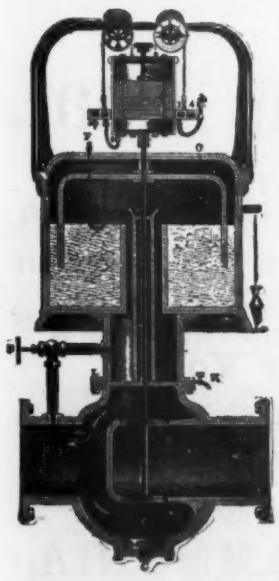

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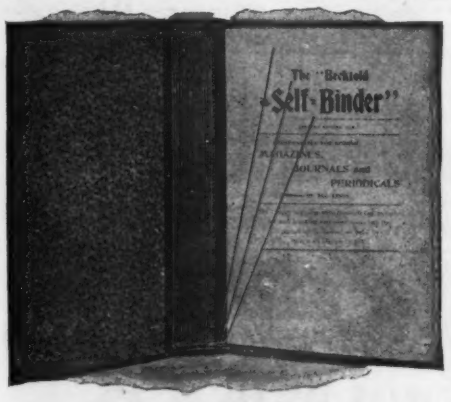

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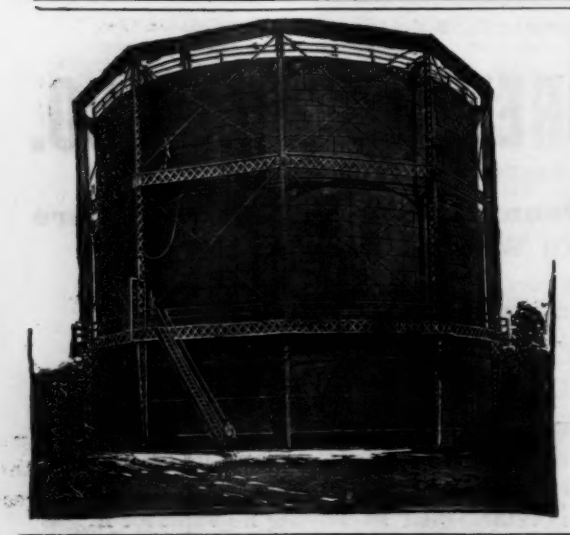

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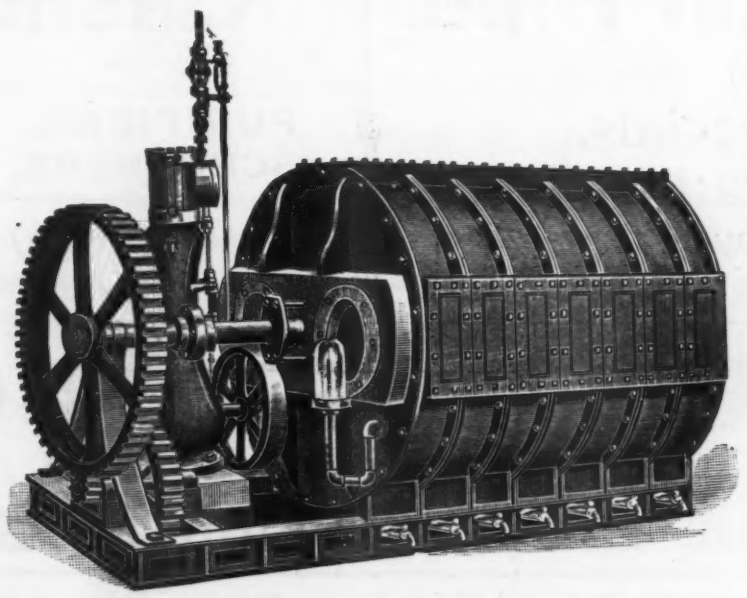

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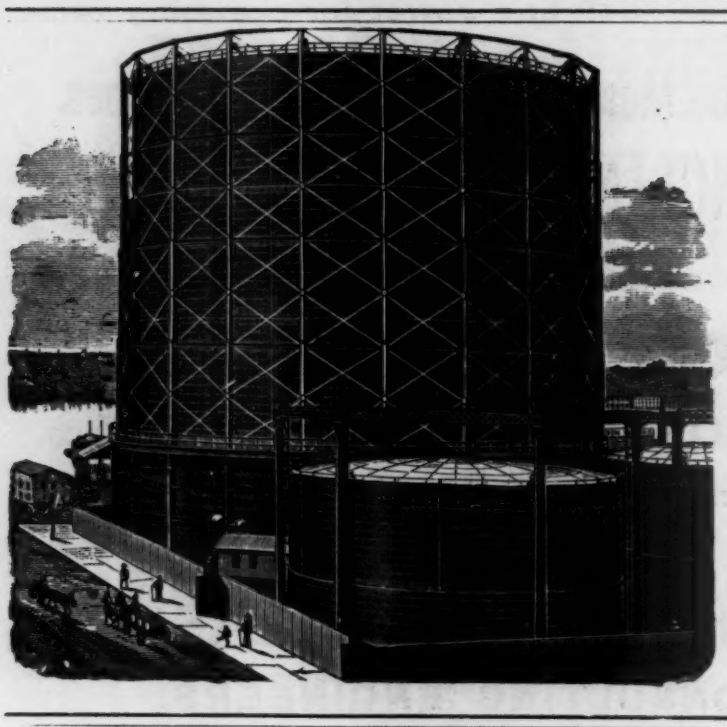

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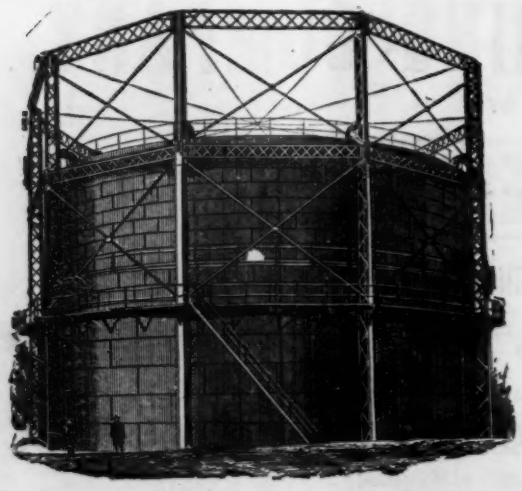

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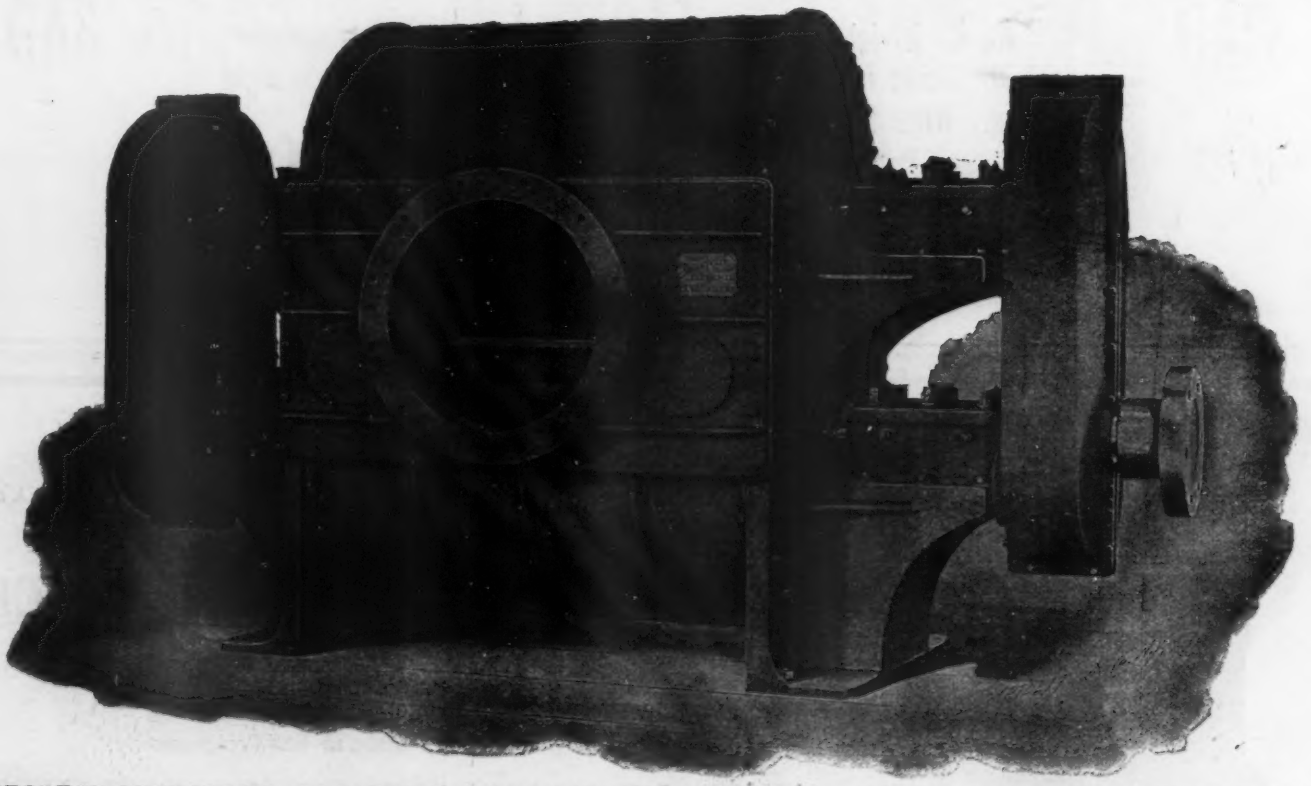

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